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Dear Ms. Lee and Ms. Constantinescu:

I am pleased to submit to you the *Final Site 1 Landfill 2004 Annual Report* for the former Naval Air Station (NAS) Moffett Field, Moffett Field, California. If you have questions or comments, please contact Mr. Glenn Christensen at (619) 532-0924 or myself at (619) 532-0952

Sincerely,

*"Signature on file"*

RICHARD WEISSENBORN  
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By direction of the Director

Enclosure: 1. *Final Site 1 Landfill 2004 Annual Report* dated December 2, 2005

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Program Management Office West  
1455 Frazee Road, Suite 900  
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**FINAL  
SITE 1 LANDFILL  
2004 ANNUAL REPORT  
Revision 0  
December 2, 2005**

**FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

**Base Realignment and Closure  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108**

**CONTRACT NO. N68711-98-D-5713  
CTO No. 0086**

**FINAL  
SITE 1 LANDFILL 2004 ANNUAL REPORT  
Revision 0  
December 2, 2005**

**FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

**DCN: FWSD-RAC-06-0125**



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## ABBREVIATIONS AND ACRONYMS

4,4 - DDD	4,4 - dichlorodiphenyldichloroethane
µg/L	micrograms per liter
ASTM	American Society for Testing and Materials
BeP	bi(2-ethylhexyl)phthalate
bgs	below ground surface
BHC	benzene hexachloride
CCL	calculated concentration limit
COC	constituent of concern
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DEH	Santa Clara County Department of Environmental Health
DUP	duplicate sample
EPA	United States Environmental Protection Agency
ft	feet
ft/ft	feet per foot
FWENC	Foster Wheeler Environmental Corporation
GS	ground surface
GV	gas vent
IRP	Installation Restoration Program
IT	International Technology Corporation
J	estimated value
LGMW	landfill gas monitoring well
MDL	method detection limit
mg/L	milligrams per liter
msl	mean sea level
NA	not available
NAD	North American Datum
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration

## **ABBREVIATIONS AND ACRONYMS**

(Continued)

NGVD	National Geodetic Vertical Datum
NM	not measured
OU1	Operable Unit 1
PCB	polychlorinated biphenyl
ROD	Record of Decision
SQL	sample quantitation limit
SVOC	semivolatile organic compound
TtEMI	Tetra Tech EM, Inc.
ToC	top of casing
TtFW	Tetra Tech FW, Inc.
U	analyte not detected above method reporting limit
UJ	analyte not detected above estimated reporting limit
VOC	volatile organic compound



## EXECUTIVE SUMMARY

This document summarizes the 2004 monitoring and maintenance activities conducted at the Site 1 Landfill and presents the results of evaluating the post-closure groundwater monitoring data collected at the Site 1 Landfill in 2004. The content of this report meets the requirements of the Record of Decision for Operable Unit 1 and the California Code of Regulations, Title 27, Subchapter 3. The Site 1 Landfill is located at the northern end of the former Naval Air Station Moffett Field, located near Mountain View, California.

Depth to groundwater measurements, groundwater sampling, and methane monitoring were conducted at the Site 1 Landfill in March, May, and November 2004. Groundwater samples were collected from nine monitoring wells, as well as from collection trench well W1-22. Collection trench well W1-23 could not be sampled due to insufficient water. Volatile organic compounds, pesticides, polychlorinated biphenyls (PCBs), and metals, including mercury, were analyzed during each sampling event. In May and November 2004, semivolatile organic compounds (SVOCs) also were analyzed.

SVOCs and mercury were analyzed in supplemental groundwater sampling events in July, August, September, and December 2004 because SVOCs and mercury were not analyzed historically at Site 1. SVOCs and mercury were not detected in these sampling events. Water level measurements also were taken during these supplemental sampling events.

Depth to groundwater measurements were collected from Site 1 Landfill monitoring wells, piezometers, and collection trench wells on March 22, May 24, July 6, August 18, September 27, November 8, and December 13, 2004. The groundwater elevations were similar to previous years. The groundwater flows from north to south at the Site 1 Landfill. The water levels in monitoring well pairs show upward potential. Most monitoring wells had seasonal high water levels in March 2004 and seasonal low water levels in August 2004. The seasonal water level fluctuation was on the order of 0.5 feet.

Analytical results of 2004 groundwater sampling at Site 1 were evaluated in accordance with the procedures provided in the *Final Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) issued in April 2004. The Tech Memo provides calculated concentration limits (CCLs) that were developed based on ecological screening criteria and site-specific attenuation factors for the groundwater. These CCLs are used as initial screening criteria in the groundwater evaluation.

During 2004, no reported pesticides or PCB concentrations were greater than the applicable CCLs. Aluminum, barium, chromium, silver, carbon disulfide, bis(2-ethylhexyl)phthalate (BeP),

and caprolactam concentrations were greater than the applicable CCL in samples from a monitoring well in at least one sampling event during 2004. In the cases of barium, chromium, silver, and carbon disulfide, exceedances occurred either from a background well or were less than historical background levels previously recorded. Therefore, there was not a release from the landfill.

In the cases of aluminum, BeP and caprolactam, there was one exceedance each, which occurred in samples from a downgradient monitoring well and each was at a concentration greater than historical background levels. In the case of aluminum, there were no detections in several subsequent sampling events conducted approximately 6 weeks apart. In the cases of BeP and caprolactam, the exceedances were only in the duplicate sample and were not detected in the regular sample collected from this well at the same time as the duplicate sample. BeP and caprolactam were not detected in several subsequent sampling events conducted approximately 6 weeks apart. BeP is often a laboratory contaminant. These exceedances are considered to be false positives and there was no release from the landfill.

As part of landfill monitoring activities, methane monitoring was conducted for 19 passive gas vent wells within the Site 1 Landfill and 4 landfill gas monitoring wells on the perimeter of the landfill. Methane monitoring was also performed at the perimeter of the site at 150-foot intervals. In general, the percentages of methane gas concentrations within the landfill were slightly lower in November 2004 than in March or May 2004 and are similar to historical concentrations. None of the perimeter wells showed concentrations of methane above the Title 27 concentration limit of 5 percent (all readings were zero percent). Methane was not detected at any of the perimeter monitoring locations in March, May, or November 2004.

A replacement well for monitoring well W1-1 was installed and developed in August 2004. Maintenance activities conducted at the Site 1 Landfill during 2004 include inspection and repair, as required, of the landfill cover, including cutting the grass and the weeds, the raptor perches, landfill gas vents and monitoring wells, groundwater monitoring wells, piezometers, collection trench wells, and stormwater runoff controls. Santa Clara County Department of Environmental Health inspected Site 1 quarterly in 2004. No problems or deficiencies were identified.

## 1.0 INTRODUCTION

This document summarizes the 2004 monitoring and maintenance activities conducted at the Site 1 Landfill and presents the results of evaluating the post-closure groundwater monitoring data collected at the Site 1 Landfill in 2004. The content of this report meets the requirements of the Record of Decision (ROD) for Operable Unit 1 (OU1) and the California Code of Regulations, Title 27, Subchapter 3. The Site 1 Landfill is located at the northern end of the former Naval Air Station Moffett Field (Moffett), located near Mountain View, California (Figure 1-1 and Figure 1-2). This report was prepared on behalf of the Base Realignment and Closure Program Management Office West. This work was conducted under Contract Task Order Number 0086, issued under Remedial Action Contract No. N68711-98-D-5713.

The purpose of this Annual Report is to present the results of groundwater monitoring and methane monitoring conducted in 2004 for the detection monitoring program at the Site 1 Landfill. It also includes a description of maintenance conducted at the Site 1 Landfill during 2004. Appendices A through F include field sampling data, analytical data, statistical evaluation, analytical data validation packages, groundwater hydrographs, groundwater monitoring point data graphs, and methane monitoring data graphs.

### 1.1 SITE LOCATION

Moffett is located near the southern edge of the San Francisco Bay in Santa Clara County, California (see Figure 1-1). Moffett is bounded by saltwater evaporation ponds to the north, Stevens Creek to the west, U.S. Highway 101 to the south, and Lockheed Martin to the east (see Figure 1-2).

The Site 1 Landfill is located in the northernmost portion of Moffett and encompasses approximately 12 acres. The Site 1 Landfill (historically referred to as the Runway Landfill) lies at the north end of the runways between North Perimeter Road, the salt evaporation ponds, and the Stormwater Retention Pond.

### 1.2 2004 MONITORING AND MAINTENANCE ACTIVITIES

Monitoring activities conducted in 2004 at Site 1 included depth to groundwater measurements, groundwater sampling, and methane monitoring. Groundwater monitoring at Site 1 was conducted during 2004 in accordance with the *Site 1 Landfill Final Closure Plan and Post-Closure Maintenance Plan* (Tetra Tech EM, Inc. [TtEMI], 1998), the *Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2) Sampling and Analysis Plan* (International Technology Corporation [IT], 2000), the *Final Sampling and Analysis Plan Addendum for Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2)* (Foster Wheeler Environmental Corporation [FWENC], 2001a), and the *Final Site-Specific Contractor Quality*

*Control Plan for Sites 1 and 2 Groundwater Monitoring and Maintenance* (FWENC, 2001b). The groundwater evaluation process was revised between the March and May 2004 sampling events, in accordance with the *Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) (Tetra Tech FW, Inc. [TtFW], 2004), which was finalized in April 2004.

As approved by the regulatory agencies, the sampling frequency and some analyses were modified in 2004 in accordance with the Tech Memo. Quarterly sampling was continued through March 2004. The Tech Memo was issued in April 2004, which states that semiannual sampling will be conducted in May and November 2004. Mercury was added to the groundwater analytes sampled in March 2004, and mercury and semivolatile organic compounds (SVOCs) were added to the analytes sampled in May and November 2004.

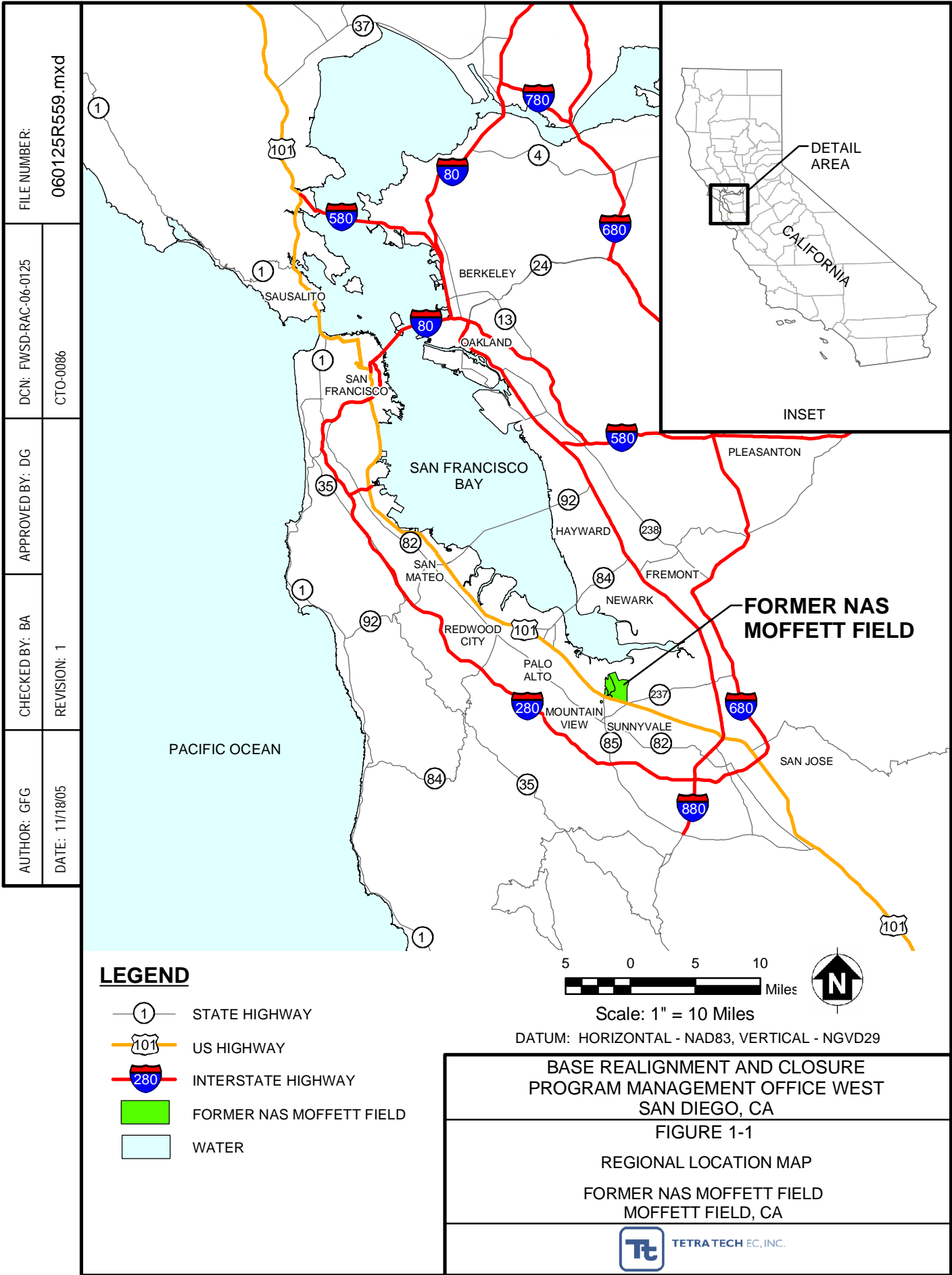
Methane monitoring was conducted in accordance with Section 6 of the *Site 1 Landfill Final Closure Plan and Post-Closure Maintenance Plan* (TtEMI, 1998), Section 5.2 of the *Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2) Sampling and Analysis Plan* (IT, 2000), and the *Final Sampling and Analysis Plan Addendum for Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2)* (FWENC, 2001a).

Depth to groundwater measurements, groundwater sampling, and methane monitoring were conducted at the Site 1 Landfill in March, May, and November 2004. Groundwater samples were collected from nine monitoring wells, as well as from collection trench well W1-22. Collection trench well W1-23 could not be sampled due to insufficient water. Volatile organic compounds, pesticides, polychlorinated biphenyls (PCBs), and metals, including mercury, were analyzed during each sampling event. In May and November 2004, SVOCs also were analyzed.

SVOCs and mercury were analyzed in supplemental groundwater sampling events in July, August, September, and December 2004 because SVOCs and mercury were not analyzed historically at Site 1. Water level measurements also were taken during these supplemental sampling events.

Monitoring well W1-1 was replaced in August 2004 due to corrosion of the well riser and outer protective casing. Installation of monitoring well W1-1R was completed on August 13, 2004. Table 1-1 provides well construction information for all Site 1 monitoring wells. Monitoring well W1-1R was constructed using techniques that conform to American Society for Testing and Materials (ASTM) D5092-04. Well W1-1R was located as close as possible to the original well and screened in approximately the same interval. Development of well W1-1R was completed on August 16, 2004. W1-1R was developed using a combination of surging and pumping that conforms to ASTM D5521-94. The boring log, well completion report, survey report, well development log, and well construction application are included in Appendix G.

Maintenance activities conducted at Site 1 during 2004 include inspection and repair, as necessary, of the landfill cap, stormwater runoff and control measures, raptor perches, landfill



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FIGURE 1-2  
SITE 1 LOCATION MAP  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA

 TETRA TECH EC, INC.

TABLE 1-1

**WELL CONSTRUCTION INFORMATION  
FORMER NAS MOFFETT FIELD**

Location	Northing (feet)	Easting (feet)	Diameter (inches)	ToC Elevation (feet) <sup>1</sup>	GS Elevations (feet) <sup>1</sup>	Total Well Depth (feet bgs)	Depth of Screen Interval (feet bgs)
W1-1 <sup>2</sup>	342250.8	1549860.0	2	2.16	2.11	25.0	15.0 - 25.0
W1-1R <sup>2</sup>	342251.8	1549854.4	4	4.83	2.21	25.5	14.3 - 24.3
W1-5	343385.2	1549579.0	4	3.02	1.91	21.5	14.5 - 19.5
W1-6	342228.3	1549584.0	4	-0.56	0.51	34.0	15.0 - 30.0
W1-7	342492.2	1548951.0	4	0.24	0.01	75.0	40.0 - 70.0
W1-8	342968.0	1549752.0	4	2.95	1.11	25.0	13.0 - 18.0
W1-12R	342969.3	1549342.1	4	0.17	-3.19	22.0	11.7 - 21.7
W1-14	342421.0	1549035.0	2	2.46	-0.69	14.1	4.1 - 14.1
W1-15	342381.0	1549545.0	2	2.60	-0.29	14.4	4.4 - 14.4
W1-16	342492.0	1549840.0	2	3.82	1.31	15.4	5.4 - 15.4
W1-19	342300.6	1549180.2	2	1.98	-0.39	19.0	14.0 - 19.0
W1-20	342362.1	1549457.3	2	2.72	-0.09	19.0	14.0 - 19.0
W1-22 <sup>3</sup>	343087.7	1549412.9	8	1.12	2.11	7.0	2.5 - 7.0
W1-23 <sup>3</sup>	342804.1	1549148.2	8	0.83	2.21	7.0	2.5 - 7.0
W1-24	342747.8	1549847.2	4	4.27	1.91	24.5	6.0 - 16.0
PZ1-18 <sup>4</sup>	342301.3	1549184.7	2	2.25	-0.29	40.0	30.0 - 40.0
PZ1-21 <sup>4</sup>	342359.0	1549452.0	2	2.28	-0.09	40.0	30.0 - 40.0

**Notes:**

<sup>1</sup> ToC referenced to survey was conducted during November 2002, with the exception of W1-12R and W1-1R, which were surveyed in October 2003 and November 2004, respectively.

<sup>2</sup> W1-1 was decommissioned and reconstructed as W1-1R on August 13, 2004.

<sup>3</sup> W1-22 and W1-23 are collection trench wells and not groundwater monitoring wells.

<sup>4</sup> PZ1-18 and PZ1-21 are piezometers and not groundwater monitoring wells.

Positions were determined using NASA Ames Research Center Control Monument ARC-32, a disc set flush in concrete, 6.5 feet north of northeast edge of pavement (Patrol Road) and 75 feet east of Perimeter Road, and 2.5 feet west of the chain-link fence.

Northings and eastings are shown in NAD27, elevations are shown in NGVD29.

Measuring point is recorded from top of well casing.

The screen interval for replacement wells W1-1R and W1-12R are similar to those of the original wells they replaced (within 1 foot of the screen interval for the original wells).

**Abbreviations and Acronyms:**

bgs - below ground surface

GS - ground surface

NAD - North American Datum

NAS - Naval Air Station

NASA - National Aeronautics and Space Administration

NGVD - National Geodetic Vertical Datum

ToC - top of casing

gas vents, perimeter landfill gas monitoring wells, the landfill gas-venting trench and gas vents, collection trench and collection trench wells, and groundwater monitoring wells and piezometers. Site 1 inspections were conducted in January, February, May, August, and November 2004. Inspection checklists and maintenance activities are provided in Appendix H.

Santa Clara County Department of Environmental Health (DEH) also inspects the Site 1 Landfill quarterly. No problems or deficiencies were noted during DEH inspections. The DEH inspection reports are provided in Appendix H.

### **1.3 BASIS OF DATA EVALUATION**

Remedial activities at Moffett are conducted as part of the Installation Restoration Program (IRP) established by the Department of Defense to identify, evaluate, and control the spread of contaminants from historical hazardous waste sites. The Site 1 Landfill is in OU1. The content of this report meets the requirements stated in the ROD (Navy, 1997) for OU1 and the California Code of Regulations, Title 27, Subchapter 3.

The ROD for OU1 (Navy, 1997) summarizes site characteristics and risks, describes and evaluates the remedial alternatives, identifies the selected remedy, and identifies statutory determinations (including compliance with applicable or relevant and appropriate requirements). The major elements of the selected remedy for the Site 1 Landfill are a landfill cap, landfill gas-venting trench, subsurface collection trench, groundwater and methane monitoring, institutional controls, and post-closure maintenance. Remedial actions were completed in November 1998, and methane and groundwater monitoring began in 1999.

The evaluation of Site 1 groundwater analytical results presented in this report was conducted in accordance with the Tech Memo (TtFW, 2004). The Tech Memo documented the groundwater detection monitoring program, calculated concentration limits (CCLs), and described the statistical evaluation process for the Site 1 Landfill post-closure monitoring. The CCLs were developed based on ecological screening criteria and site-specific attenuation factors for the groundwater. These CCLs are used as initial screening criteria in the groundwater evaluation. If analytical results are less than the CCLs, then no additional evaluation is required, and there is no release from the landfill. If CCLs are exceeded, then additional evaluation of upgradient (background) and downgradient data is conducted to determine whether there has been a release from the landfill. Appendices A and B of this document contain the field sampling data and analytical summary and CCL evaluation tables.

### **1.4 REPORT ORGANIZATION**

This report is divided into the following sections:

- **Section 1.0: Introduction**, presents the site location, monitoring and maintenance activities, the basis of the data evaluation, and the report organization



- **Section 2.0: Groundwater Hydraulics**, presents the Site 1 groundwater gradient, flow direction, and water level trends
- **Section 3.0: Groundwater Sampling**, summarizes the Site 1 groundwater analytical data and presents the results of the evaluation of the groundwater data
- **Section 4.0: Methane Monitoring**, summarizes the Site 1 methane monitoring data in the landfill gas monitoring wells, the landfill gas vents, and the perimeter gas monitoring points
- **Section 5.0: Conclusions**, presents the conclusions and recommendations
- **Section 6.0: References**, presents the references for this report
- **Tables and figures** are incorporated into the text
- **Appendix A**, contains the field sampling data sheets
- **Appendix B**, contains a summary of the analytical tables and the CCL tables
- **Appendix C**, presents the Site 1 groundwater validated analytical results
- **Appendix D**, provides hydrographs of the Site 1 groundwater monitoring wells, piezometers, and collection trench wells
- **Appendix E**, provides time-series concentration graphs of monitoring points for each constituent of concern that was detected in 2004
- **Appendix F**, provides time-series methane concentration graphs of the landfill gas monitoring wells and landfill gas vents
- **Appendix G**, provides documentation of the construction of monitoring well W1-1R
- **Appendix H**, provides the 2004 Santa Clara County landfill inspection reports and the general site inspection reports
- **Appendix I**, presents the Response to Comments

## 2.0 GROUNDWATER HYDRAULICS

This section describes the Site 1 hydrogeology, groundwater gradient and flow direction, and water level trends.

The stratigraphy of the Site 1 Landfill is a complex interfingering of fine-grained units representing the boundary between alluvial and estuarine environments and fluctuations of the boundary caused by changes in sea level. Lithologic logs from shallow well borings indicate that the uppermost materials (zero to 60 feet below ground surface) are comprised of silts to silty clays, which are brown to black and moderately plastic in nature. Intermittent throughout the upper 60 feet are interfingered silty sands and clayey gravels, which are medium gray to black or brown. These materials are present as lenses or stringers and are not consistent laterally or vertically throughout the site.

Most of the groundwater elevations in the Site 1 Landfill groundwater monitoring wells are below mean sea level. The vadose zone, between the saturated zone and the land surface, consists of either imported fill material or clayey soils.

Shallow subsurface soil samples within the Site 1 Landfill and surrounding the site, taken below the landfill but above the permeable lenses within the upper portion of the shallow aquifer, were tested for porosity and permeability. The results indicate that soils below the landfill and above the shallow aquifer are generally clays with hydraulic conductivity values in the  $10^{-8}$  centimeter-per-second range.

Groundwater in the upper portion of the shallow aquifer beneath the landfill generally flows north to south (Tetra Tech FW, Inc. [TtFW], 2004). The regional groundwater flow direction is south to north toward San Francisco Bay. The southward gradient underlying the Site 1 Landfill is opposite from the regional gradient because of active pumping of the Moffett storm drainage system. Pumping occurs at Building 191, located south of the Site 1 Landfill (see Figure 1-2). Building 191 began operating in the early 1950s. It consists of a subsurface concrete-lined vault, equipped with a passive pump, and receives water from nearby ditches and a French drain system underneath the runways (Tetra Tech EM, Inc., 2000). The pump station influences local groundwater gradients and reverses the local natural groundwater flow direction because the drainage system that feeds the pump station is below the water table in some areas.

Three water bodies are proximal to the Site 1 Landfill: the man-made ephemeral Stormwater Retention Pond to the north, Former Jagel Slough to the southeast, and a saltwater evaporation pond to the east. It appears that low-permeability barriers exist between the water bodies and the Site 1 Landfill, limiting subsurface water movement (Navy, 1997). As a result, head differences are maintained between each water body (International Technology Corporation, 1993). Potential

for flow from the landfill to the other bodies exists, but these restrictive barriers limit actual flow. Low-hydraulic conductivity, high-organic contents associated with the clays, and low-contaminant source concentrations combine to restrict flow and limit potential contaminant migration (Navy, 1997).

## **2.1 GROUNDWATER GRADIENT AND FLOW DIRECTION**

Field activities, conducted at the Site 1 Landfill in 2004, included seven water level gauging events at monitoring wells, piezometers, and collection trench wells prior to each sampling event (Table 2-1). This section describes the collection of 2004 water level measurements and summarizes groundwater flow direction beneath the Site 1 Landfill. Figure 2-1 shows the locations for Site 1 water level measurements.

Measurements of depth to groundwater were made using an electronic measuring tape with markings every hundredth of a foot. All water levels were measured within a 24-hour period. Measurements were subtracted from surveyed measuring point elevations to calculate the groundwater level elevations.

Depth to groundwater measurements were collected from 12 monitoring wells, 2 piezometers, and 2 collection trench wells at the Site 1 Landfill on:

- March 22, 2004
- May 24, 2004
- August 18, 2004
- September 27, 2004
- November 8, 2004
- December 13, 2004

Depth to groundwater measurements were also collected on July 6, 2004. However, only the wells that were sampled were gauged for depth to groundwater measurements.

Groundwater elevations for all Site 1 Landfill groundwater measurements were below sea level for 2004. The potentiometric surfaces of the upper portion of the shallow aquifer, shown on Figure 2-2 through Figure 2-8, were based on groundwater elevations in monitoring wells of similar construction and screened in the upper portion of the shallow aquifer. For example, PZ1-18 and PZ1-21 and wells W1-6 and W1-7 were not included because they are screened at greater depths than the other wells and are not considered representative of the groundwater elevations in the upper portion of the shallow aquifer. In addition, collection trench wells W1-22 and W1-23 were not included, as they are screened within the collection trench north of the landfill and are not considered representative of groundwater elevations.

TABLE 2-1

**2004 GROUNDWATER ELEVATIONS  
FORMER NAS MOFFETT FIELD**

Location	ToC Elevation (ft msl)	March 22, 2004 Depth to Water <sup>1</sup> (ft)	March 22, 2004 Water Elevation (ft msl)	May 24, 2004 Depth to Water <sup>1</sup> (ft)	May 24, 2004 Water Elevation (ft msl)	July 6, 2004 Depth to Water <sup>1</sup> (ft)	July 6, 2004 Water Elevation (ft msl)	August 18, 2004 Depth to Water <sup>1</sup> (ft)	August 18, 2004 Water Elevation (ft msl)
W1-1 <sup>2</sup>	2.16	4.87	-2.71	3.22	-1.06	5.48	-3.32	NA	NA
W1-1R <sup>2</sup>	4.83	NA	NA	NA	NA	NA	NA	8.41	-3.58
W1-5	3.02	5.00	-1.98	5.29	-2.27	5.50	-2.48	5.83	-2.81
W1-6	-0.56	1.72	-2.28	2.36	-2.92	NM	NM	2.61	-3.17
W1-7	0.24	2.62	-2.38	2.99	-2.75	NM	NM	3.49	-3.25
W1-8	2.95	5.11	-2.16	5.38	-2.43	5.52	-2.57	5.89	-2.94
W1-12R	0.17	2.38	-2.21	2.40	-2.23	2.93	-2.76	3.16	-2.99
W1-14	2.46	5.05	-2.59	5.46	-3.00	5.75	-3.29	5.95	-3.49
W1-15	2.60	5.16	-2.56	4.55	-1.95	5.80	-3.20	6.09	-3.49
W1-16	3.82	6.37	-2.55	9.45	-5.63	6.90	-3.08	7.75	-3.93
W1-19	1.98	5.63	-3.65	5.03	-3.05	5.33	-3.35	4.55	-2.57
W1-20	2.72	5.37	-2.65	5.76	-3.04	NM	NM	6.22	-3.50
W1-22 <sup>3</sup>	1.12	3.45	-2.33	3.52	-2.40	3.62	-2.50	3.73	-2.61
W1-23 <sup>3</sup>	0.83	4.64	-3.81	5.35	-4.52	5.47	-4.64	5.30	-4.47
W1-24	4.27	6.65	-2.38	6.95	-2.68	7.20	-2.93	7.50	-3.23
PZ1-18 <sup>4</sup>	2.25	4.77	-2.52	5.14	-2.89	NM	NM	5.30	-3.05
PZ1-21 <sup>4</sup>	2.28	4.92	-2.64	5.28	-3.00	NM	NM	5.80	-3.52

TABLE 2-1

**2004 GROUNDWATER ELEVATIONS  
FORMER NAS MOFFETT FIELD**

Location	ToC Elevation (ft msl)	September 27, 2004 Depth to Water <sup>1</sup> (ft)	September 27, 2004 Water Elevation (ft msl)	November 8, 2004 Depth to Water <sup>1</sup> (ft)	November 8, 2004 Water Elevation (ft msl)	December 13, 2004 Depth to Water <sup>1</sup> (ft)	December 13, 2004 Water Elevation (ft msl)
W1-1 <sup>2</sup>	2.16	NA	NA	NA	NA	NA	NA
W1-1R <sup>2</sup>	4.83	8.23	-3.40	8.30	-3.47	8.05	-3.22
W1-5	3.02	5.54	-2.52	5.82	-2.80	5.50	-2.48
W1-6	-0.56	2.70	-3.26	2.61	-3.17	2.50	-3.06
W1-7	0.24	3.32	-3.08	3.26	-3.02	3.15	-2.91
W1-8	2.95	5.61	-2.66	5.90	-2.95	5.55	-2.60
W1-12R	0.17	2.93	-2.76	3.09	-2.92	2.75	-2.58
W1-14	2.46	5.84	-3.38	5.86	-3.40	5.55	-3.09
W1-15	2.60	5.93	-3.33	6.38	-3.78	5.75	-3.15
W1-16	3.82	7.09	-3.27	7.75	-3.93	7.10	-3.28
W1-19	1.98	5.47	-3.49	5.40	-3.42	5.15	-3.17
W1-20	2.72	6.11	-3.39	6.02	-3.30	5.93	-3.21
W1-22 <sup>3</sup>	1.12	3.79	-2.67	3.75	-2.63	3.80	-2.68
W1-23 <sup>3</sup>	0.83	5.34	-4.51	5.35	-4.52	5.75	-4.92
W1-24	4.27	7.25	-2.98	7.83	-3.56	7.10	-2.83
PZ1-18 <sup>4</sup>	2.25	5.38	-3.13	5.27	-3.02	5.20	-2.95
PZ1-21 <sup>4</sup>	2.28	5.65	-3.37	5.60	-3.32	5.41	-3.13

**Note:**

<sup>1</sup> - Depth to water may vary from field sampling data forms (Appendix A). Data were collected on separate dates.

<sup>2</sup> - W1-1 was decommissioned and reconstructed as W1-1R on August 13, 2004.

<sup>3</sup> - W1-22 and W1-23 are collection trench wells, not groundwater monitoring wells.

<sup>4</sup> - PZ1-18 and PZ1-21 are piezometers, not groundwater monitoring wells.

**Abbreviations and Acronyms:**

ft – feet

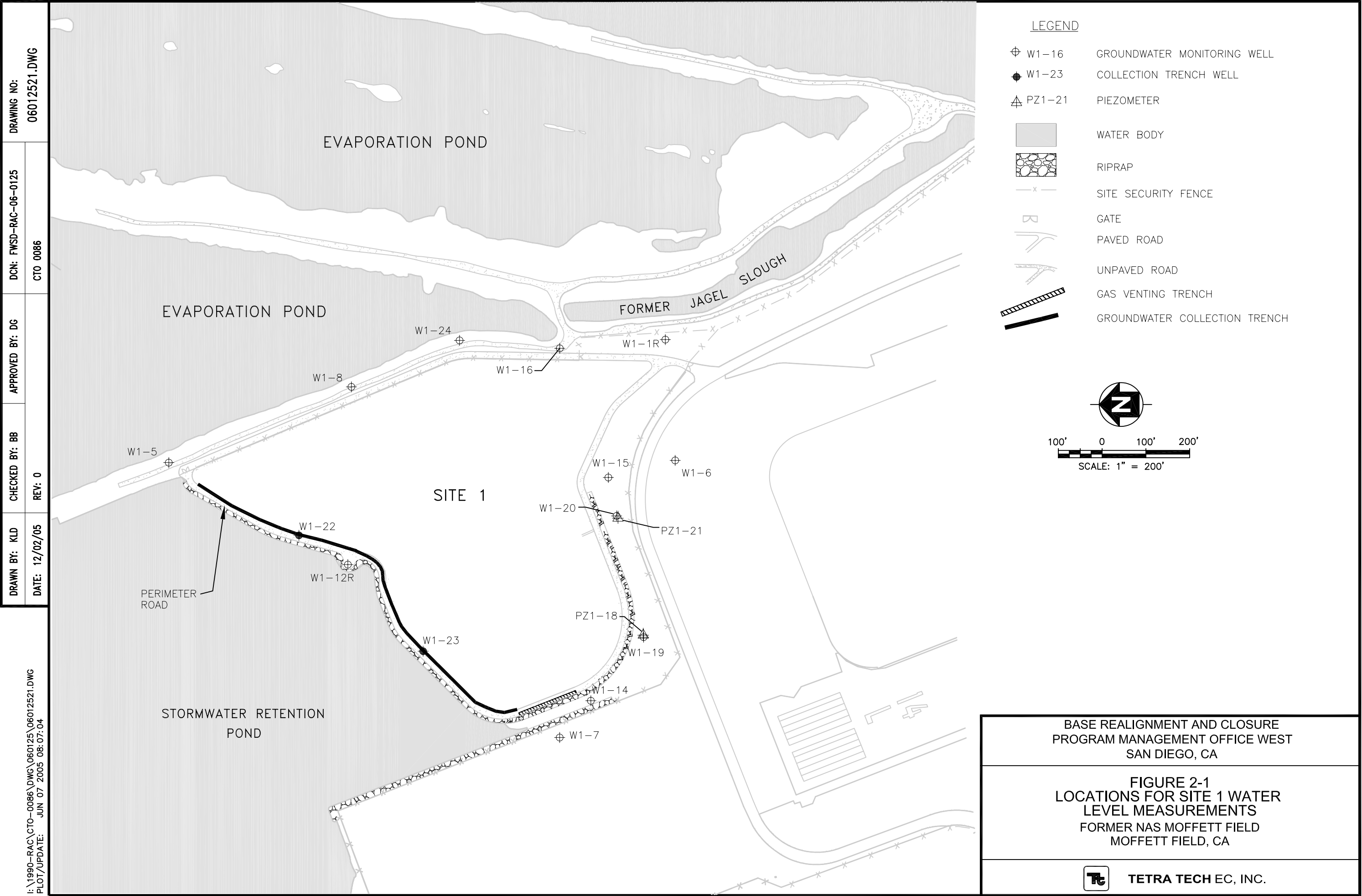
msl – mean sea level

NA – not available

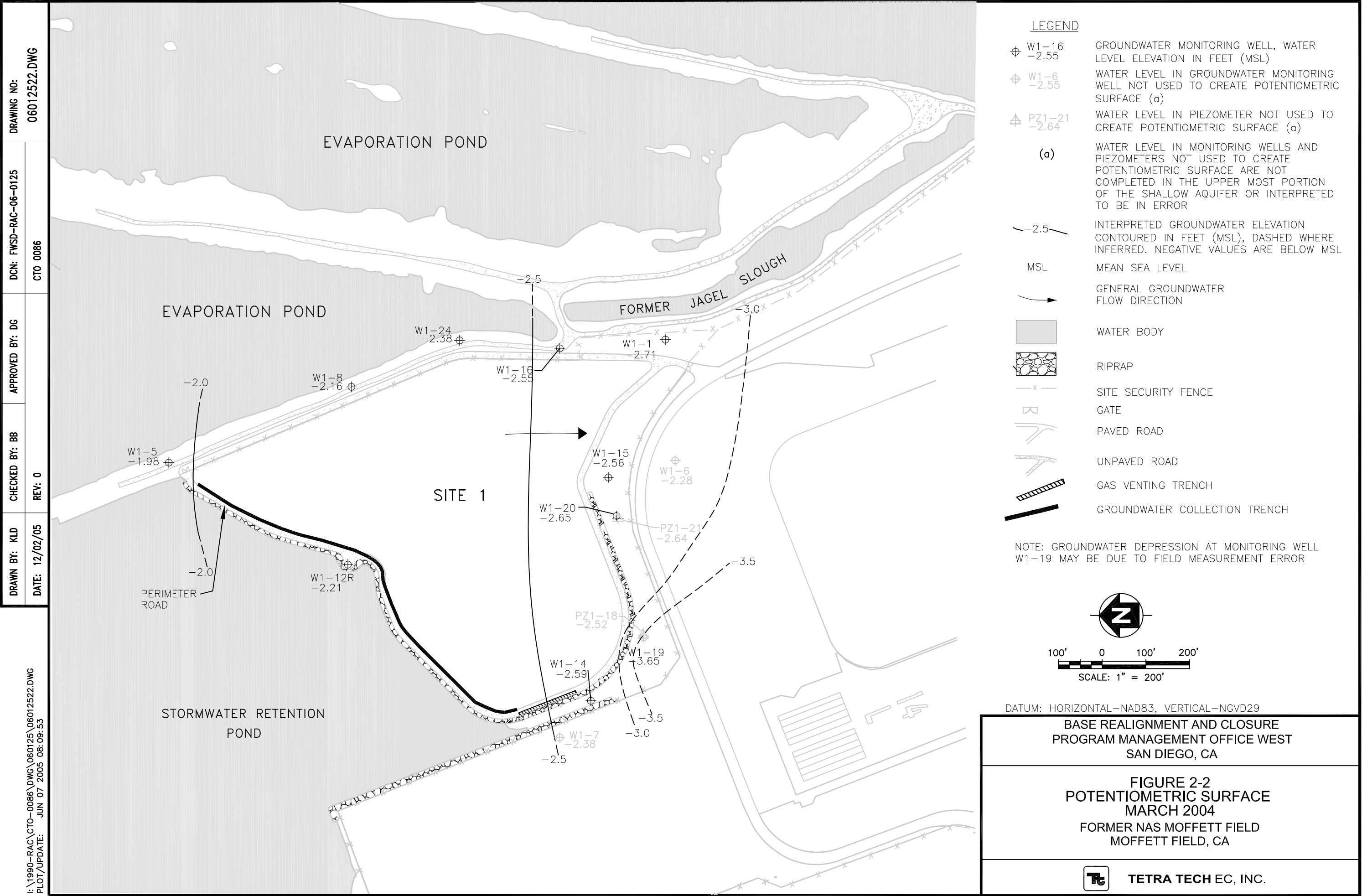
NAS – Naval Air Station

NM – not measured

ToC – top of casing

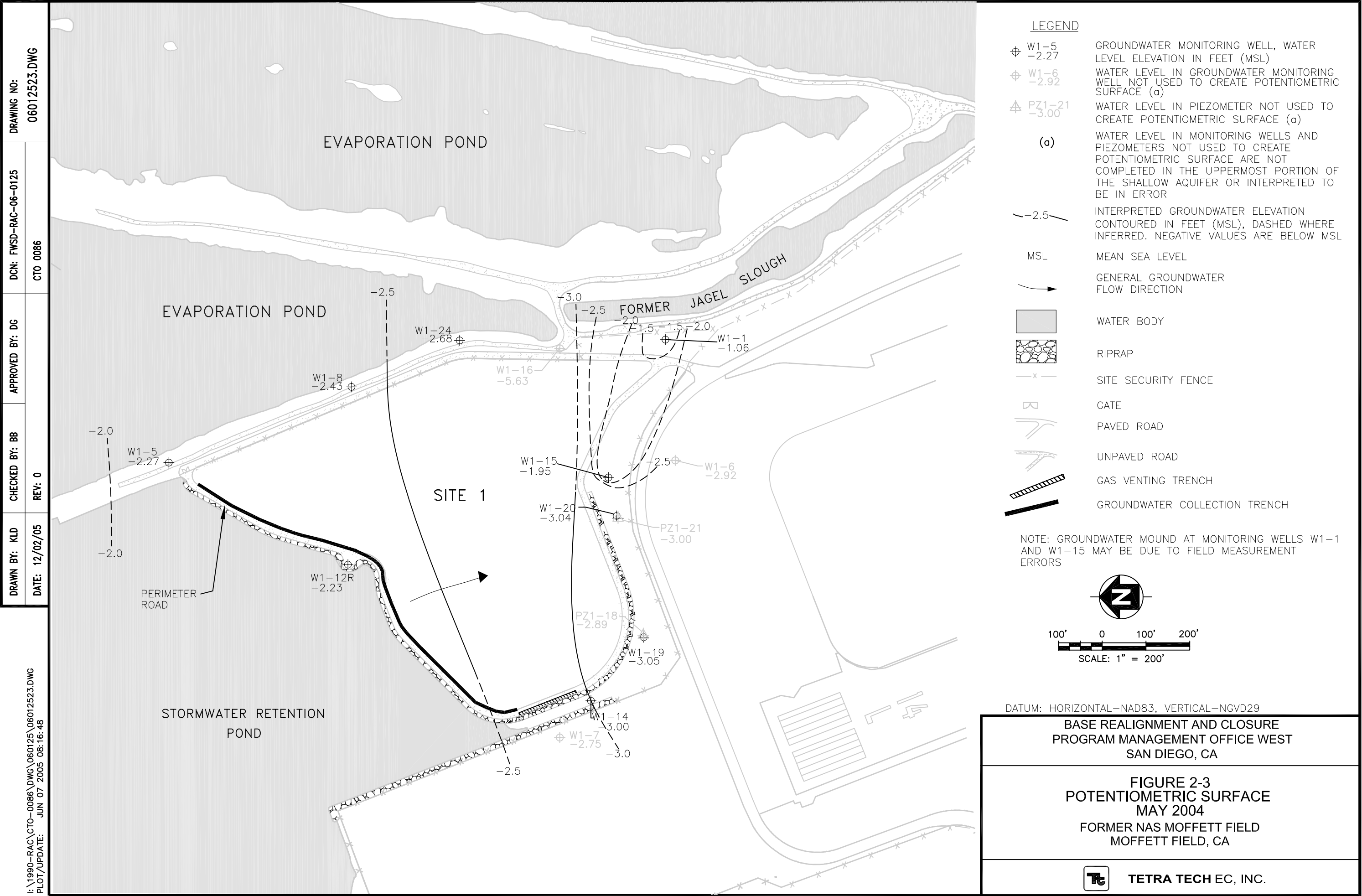


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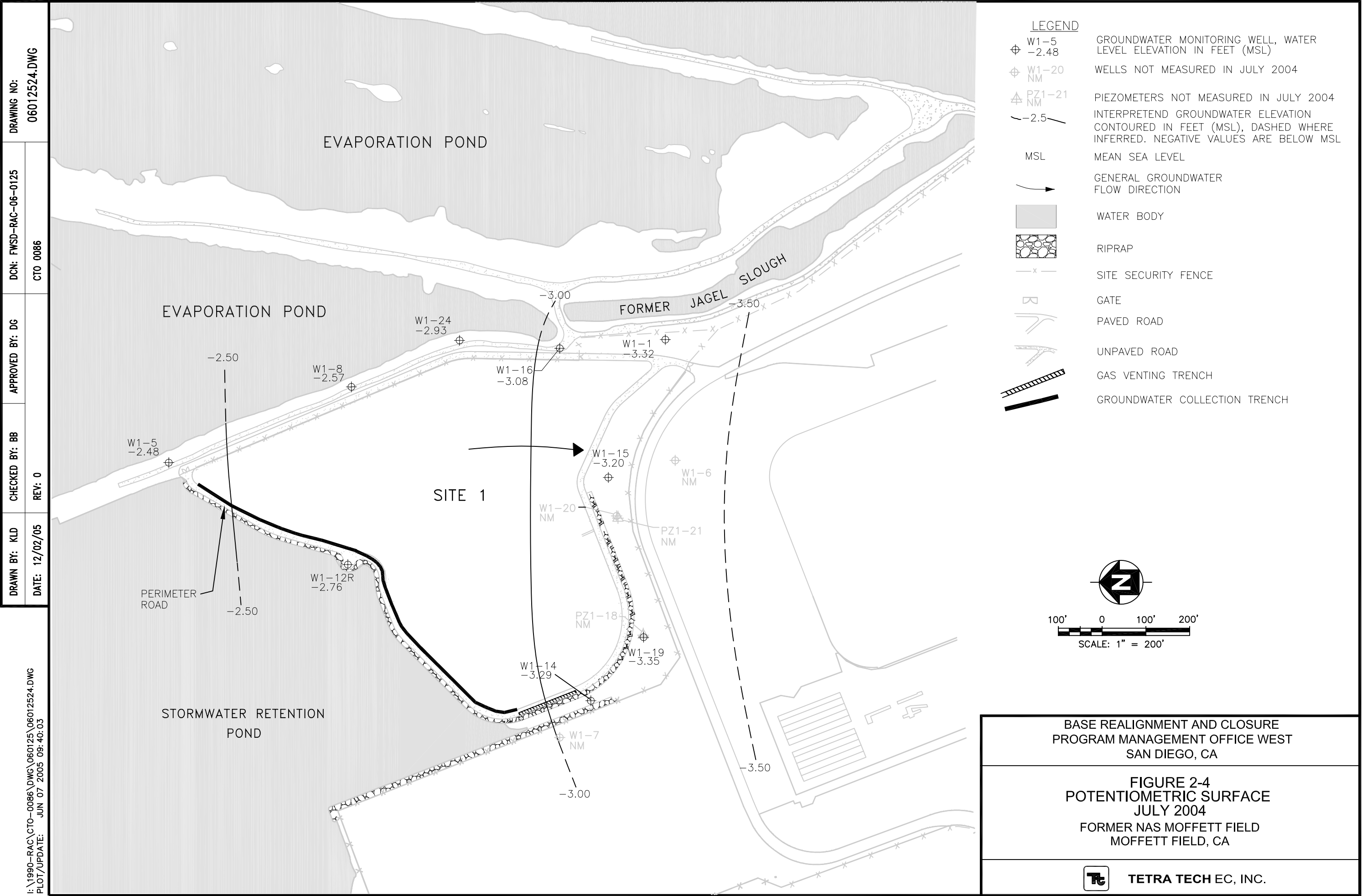
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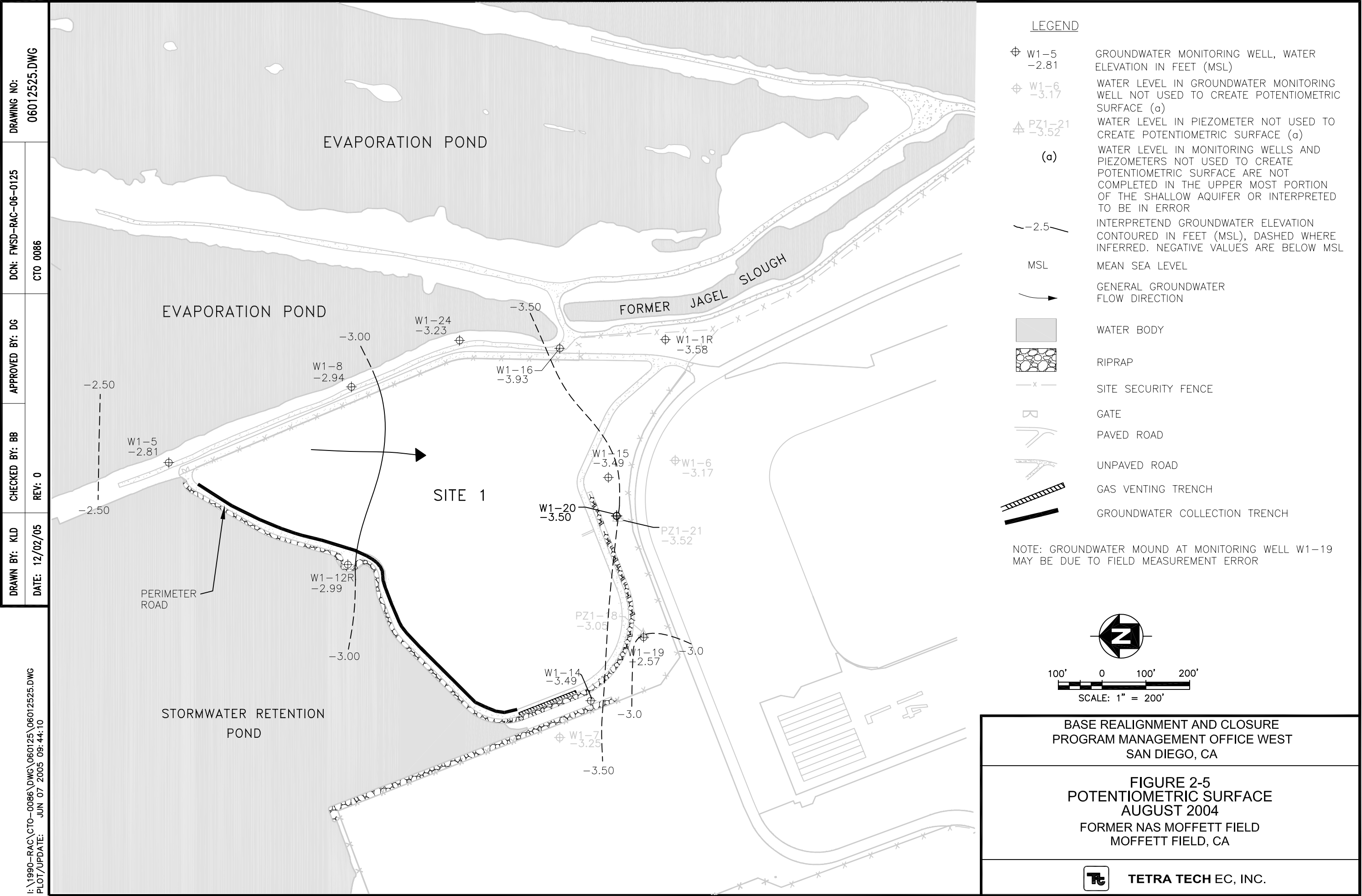
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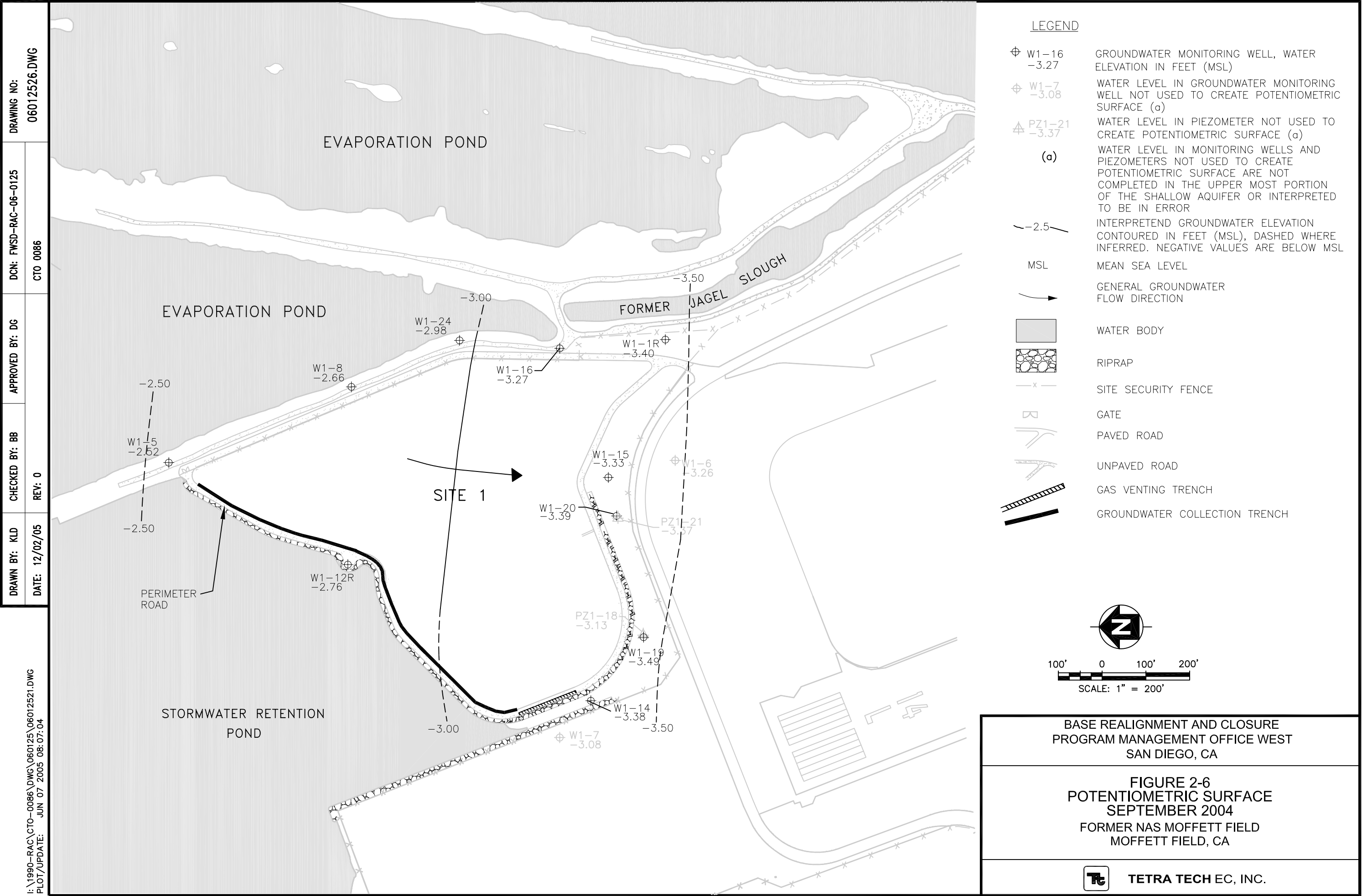
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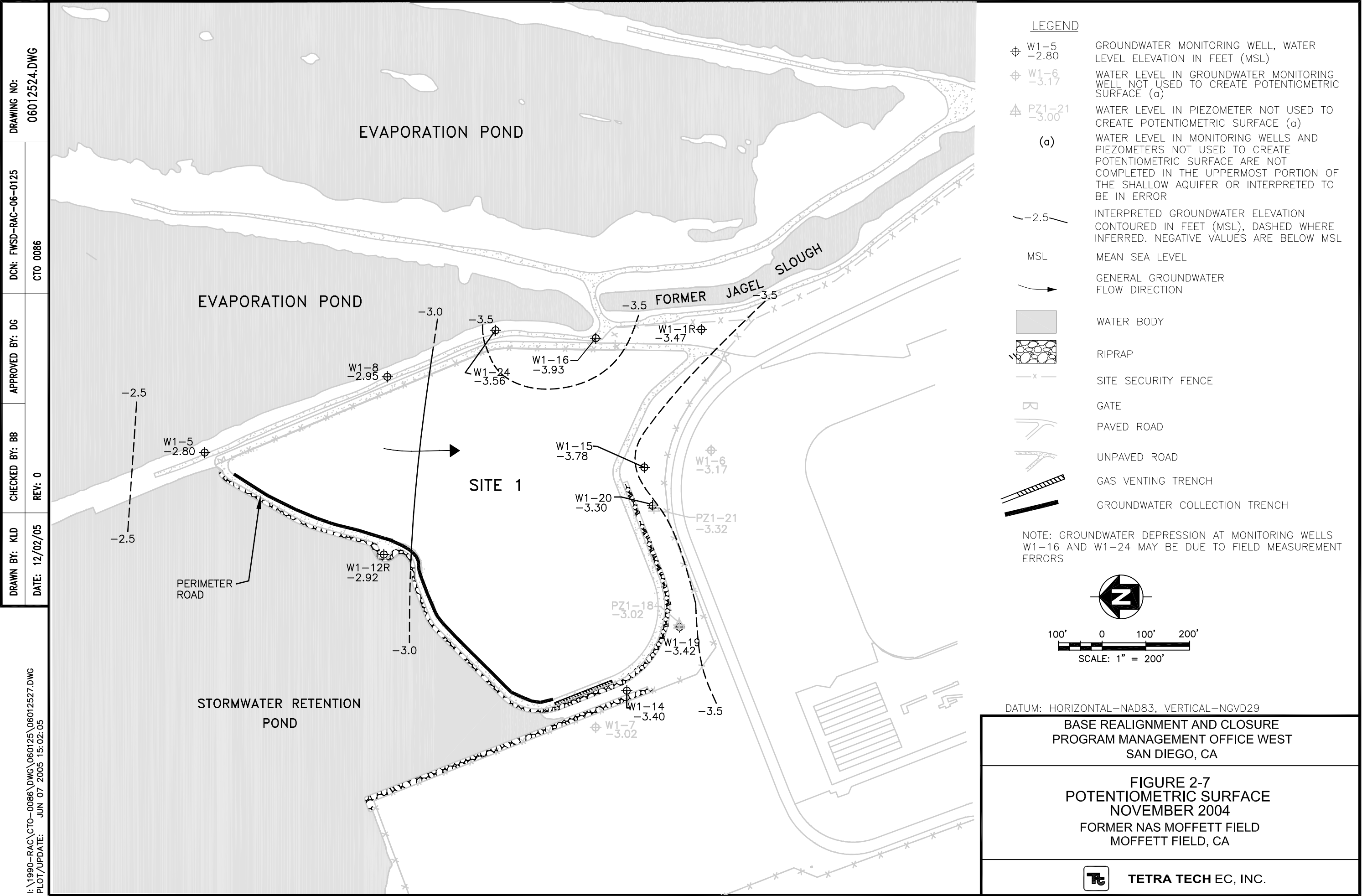
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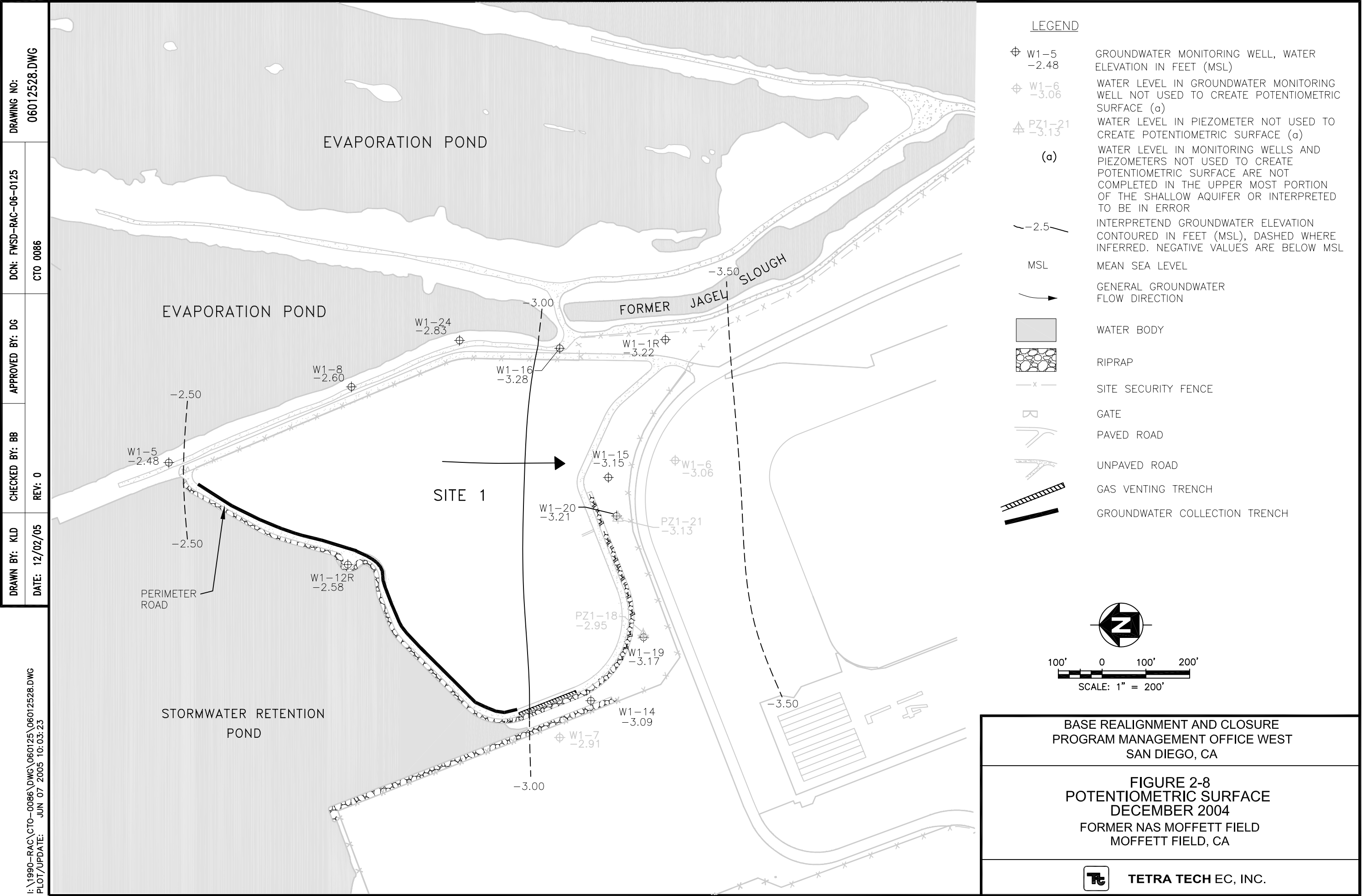


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The following monitoring wells were not included in the evaluation of the potentiometric surface:

- May 2004 – W1-16
- July 2004 – W1-20 inadvertently not measured

In May 2004, it appears that the water level measurement in well W1-16 was recorded in error.

In general, the groundwater elevations are similar to previous years. Generally, the groundwater flows from north to south at the Site 1 Landfill. The gradient from north to south (W1-5 to W1-20) is approximately:

- 0.0007 feet per foot (ft/ft) in March 2004
- 0.0008 ft/ft in May 2004
- 0.0008 ft/ft in July 2004 (W1-5 to W1-15)
- 0.0007 ft/ft in August 2004
- 0.0008 ft/ft in September 2004
- 0.0005 ft/ft in November 2004
- 0.0008 ft/ft in December 2004

The water levels in monitoring well pair W1-19/PZ1-18 (see Figure D-17 in Appendix D) show continuous upward potential (the water levels in PZ1-18 are higher than in W1-19, and PZ1-18 is completed slightly deeper in the A aquifer than W1-19) for all but the August 18, 2004, measurement since 1999. However, the water level in monitoring well W1-19 on August 18, 2004, is not consistent with the long-term trend. The water levels in monitoring well pair W1-20/PZ1-21 (see Figure D-18 in Appendix D) show a slight upward potential (the water levels in PZ1-21 are higher than in W1-20, and PZ1-21 is completed slightly deeper in the A aquifer than W1-20). Water levels in the W1-20/PZ1-21 pair have been generally within a couple hundredths of a foot of each other since 1999.

## **2.2 WATER LEVEL TRENDS**

Appendix D contains groundwater hydrographs for the 12 monitoring wells and 2 piezometers at the Site 1 Landfill. Some monitoring wells and piezometers show a slight upward (W1-1/1R, W1-12/12R, W1-19, W1-20, PZ1-18, and PZ1-21) or slight downward (W1-16, and W1-24) long-term water level trend, while the remainder of the monitoring wells showed a flat long-term trend. All monitoring wells and piezometers show a seasonal water level variation, with a high-water level elevation near the end of the rainy season (January to March) and a low-water level elevation near the end of the dry season (August to October). Seasonal water level fluctuations generally range on the order of 0.3 to 0.5 feet.

The following water level trends were observed in 2004:

- Most monitoring wells had seasonal high-water levels in March.
- Most monitoring wells had seasonal low-water levels in August.

The seasonal water level fluctuation was on the order of 0.5 feet.

### 3.0 GROUNDWATER SAMPLING

Groundwater monitoring at Site 1 was conducted during 2004 in accordance with the *Site 1 Landfill Final Closure Plan and Post-Closure Maintenance Plan* (Tetra Tech EM, Inc. [TtEMI], 1998), the *Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2) Sampling and Analysis Plan* (International Technology Corporation [IT], 2000), the *Final Sampling and Analysis Plan Addendum for Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2)* (Foster Wheeler Environmental Corporation [FWENC], 2001a), and the *Final Site-Specific Contractor Quality Control Plan for Sites 1 and 2 Groundwater Monitoring and Maintenance* (FWENC, 2001b).

In response to a request from the regulatory agencies, the sampling frequency and some analyses were modified in 2004. Sampling was conducted in March, May, and November 2004 instead of quarterly. Mercury was added to the groundwater analytes list in March 2004, and mercury and semivolatile organic compounds (SVOCs) were added to the analytes list in May and November 2004. SVOCs and mercury were analyzed in supplemental groundwater sampling events in July, August, September, and December 2004 because SVOCs and mercury were not analyzed historically at Site 1. Groundwater samples were collected from nine monitoring wells, as well as from collection trench well W1-22. Collection trench well W1-23 could not be sampled due to insufficient water. Locations for Site 1 groundwater and collection trench sampling are shown in Figure 3-1. Field sampling data sheets for the March, May, and November 2004 groundwater sampling events are included in Appendix A.

Supplemental groundwater sampling was accomplished in July, August, September, and December 2004. The supplemental groundwater sampling was conducted to develop the database required for the *Final Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) (Tetra Tech FW, Inc. [TtFW], 2004) evaluation of dissolved mercury and the SVOCs. Field sampling data sheets for the supplemental groundwater sampling events are included in Appendix A.

#### 3.1 ANALYTICAL RESULTS

Appendix B of this document presents the analytical summary tables for regular and supplemental samples collected in 2004. Appendix C of this document presents the validated analytical data. Analytical testing for 2004 changed after the approval of the Tech Memo (TtFW, 2004), as described in the following section.



### 3.1.1 Analytical Testing

Groundwater samples collected in March 2004 at the Site 1 Landfill were analyzed for the following:

- Volatile organic compounds (VOCs), using United States Environmental Protection Agency (EPA) Method 8260B
- Pesticides and polychlorinated biphenyls (PCBs), using EPA Methods 8081A/8082
- Total and dissolved metals, including mercury, using EPA Method 6010B
- Nitrate/nitrite as nitrogen, using EPA Method 353.1
- Total organic carbon, using EPA Method 415.1

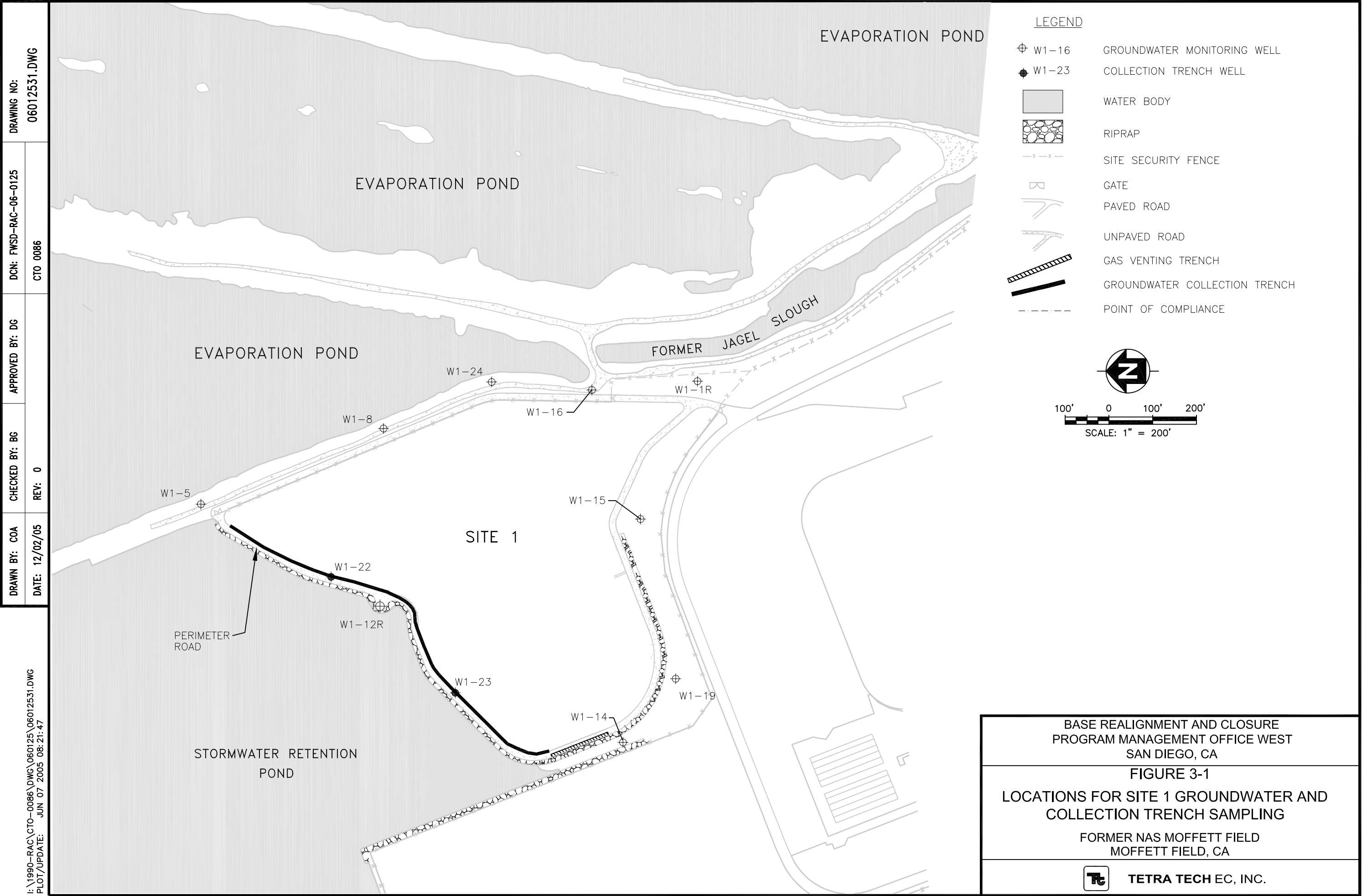
Groundwater samples collected in May and November 2004 at the Site 1 Landfill were analyzed for the following:

- VOCs using EPA Method 8260B
- Pesticides and PCBs using EPA Methods 8081A/8082
- Dissolved metals using EPA Method 200.8, except for dissolved mercury, which was analyzed by EPA Method 7470A
- SVOCs using EPA Method 8270C

Supplemental groundwater samples collected in July, August, September, and December 2004, at the Site 1 Landfill were analyzed for the following:

- Dissolved mercury using EPA Method 7470A
- SVOCs using EPA Method 8270C

Twelve samples, including two duplicate samples, were collected from nine groundwater monitoring wells and one collection trench well at the Site 1 Landfill for each sampling event. The analytical results from the collection trench well W1-22 are not considered representative of chemical concentrations of the shallow aquifer. The collection trench wells were not designed to monitor groundwater at the site. The collection trench wells are screened in a collection trench, located on the north side of the landfill, which was installed to protect the adjacent Stormwater Retention Pond. The collection trench wells are shallow and screened in permeable fill material placed in the collection trench. An impermeable barrier was installed on the north side of the collection trench to inhibit groundwater influence. Because of well construction relative to the collection trench and the shallow aquifer, the collection trench wells are not considered to be useful monitoring points for collecting representative samples of groundwater conditions. However, the collection trench wells are sampled at the same frequency as the monitoring wells in accordance with the Record of Decision (ROD) requirements.



### 3.1.2 Statistical Evaluation

In accordance with the Tech Memo (TtFW, 2004), total metals are not included in the detection monitoring program at Site 1. Therefore, only dissolved metals are discussed in the remainder of this report.

Table 3-1 presents the constituents of concern and the calculated concentration limits (CCLs), as detailed in the Tech Memo (TtFW, 2004). CCLs were developed based on ecological screening criteria and site-specific attenuation factors for the groundwater. These CCLs are used as initial screening criteria in the groundwater data evaluation. If analytical results are less than the CCLs, then no additional evaluation is required, and there is no release from the landfill. If CCLs are exceeded, then additional evaluation of the upgradient (background) and downgradient data is conducted to determine whether there has been a release from the landfill. If upgradient concentrations are higher than downgradient concentrations, there is no release from the landfill. Conversely, if downgradient concentrations are higher than upgradient concentrations, additional sampling events are conducted and evaluated to determine whether there has been a release from the landfill. Tables 3-2 through 3-4 present the analytes detected in groundwater samples from monitoring wells and the collection trench at Site 1 during March, May, and November 2004 sampling events.

### 3.1.3 Visual Trends

Appendix E contains groundwater monitoring point data graphs for monitoring wells and collection trench wells, with at least one detection in 2004, and a total of at least three historical detected concentrations (1999 through 2004). Groundwater monitoring point data graphs are specified in California Code of Regulations, Title 27, Section 20415(e)(14). The graphs in Appendix E are provided on CD only. Trends were determined by visually evaluating the graphs for increasing concentration trends, decreasing concentration trends, or relatively consistent (flat) concentration trends.

Barium, calcium, magnesium, manganese, nickel, potassium, and sodium were all detected at least once in 2004, with at least three historical detected concentrations (1999 through 2004) in samples from every Site 1 groundwater monitoring well. With the exception of barium concentrations in samples from monitoring wells W1-5, W1-8, and W1-12/W1-12R, there were flat visual trends in the concentrations. Monitoring wells W1-5, W1-8, and W1-12/W1-12R, which are all upgradient (background wells), show an increasing concentration trend. Arsenic, cadmium, cobalt, copper, iron, and zinc were found in samples from most, but not all of the Site 1 Landfill monitoring wells. There was a flat visual trend in the concentrations for arsenic, cadmium, cobalt, copper, iron, and zinc. All of these metals are found in seawater (Hem, 1971) and are considered part of the composition of natural groundwater at the Site 1 Landfill.

Antimony, beryllium, chromium, lead, silver, and thallium were all detected at least once in 2004, with at least three historical detected concentrations (1999 through 2004) in samples from

a few of the Site 1 groundwater monitoring wells. There were flat visual trends in the concentrations. All of these metals are also found in seawater (Hem, 1971) and are considered part of the composition of natural groundwater at the Site 1 Landfill.

Carbon disulfide was detected once in 2004, with at least three historical detected concentrations (1999 through 2004) in samples from groundwater monitoring well W1-5 (an upgradient monitoring well). There was a flat visual trend in the carbon disulfide concentrations in samples from monitoring well W1-5. Carbon disulfide is ubiquitous throughout the environment and is likely naturally occurring in the reducing conditions underlying the Site 1 Landfill (TtFW, 2004).

Toluene was detected once in 2004, with a total of at least three historical detected concentrations (1999 through 2004) in samples from groundwater monitoring well W1-1/W1-1R (a downgradient monitoring well). There was a flat visual trend in the toluene concentrations in samples from monitoring well W1-1/W1-1R. No other VOCs, SVOCs, or pesticides were detected in 2004. There was a total of at least three historically detected concentrations (1999 through 2004) in samples from a Site 1 groundwater monitoring well.

## **3.2 GROUNDWATER QUALITY EVALUATION**

Results from the 2004 groundwater sampling events are tabulated in Tables B-8 through B-10 in Appendix B of this document and summarized below.

### **3.2.1 March 2004 Sampling Event**

During the March 2004 sampling event, only four dissolved metals (aluminum, barium, chromium, and zinc), two VOCs (acetone and carbon disulfide), and six pesticides (4,4-dichlorodiphenyldichloroethane [4,4-DDD], alpha-benzene hexachloride [alpha-BHC], beta-BHC, delta-BHC, dieldrin, and heptachlor) were detected in samples from monitoring wells at concentrations greater than their respective laboratory reporting levels (see Table 3-2). The following details how aluminum, barium, and chromium exceeded their respective CCLs:

- The aluminum CCL was exceeded only in a sample from downgradient monitoring well W1-16. The exceedance was at a concentration greater than historical background levels. Aluminum was placed on the observation list for confirmation of a CCL exceedance over the next two regularly scheduled sampling rounds. Aluminum was not detected in samples from any monitoring well exceeding a CCL in May or November and thus is considered a false positive.
- The barium CCL was exceeded in samples from every monitoring well. However, all CCL exceedances either occurred in samples from a background well or were less than historical background values, and thus were removed from further consideration.
- Chromium was detected in only the duplicate sample at an estimated concentration in a sample from upgradient monitoring well W1-8. The chromium CCL was exceeded in a sample from a background well and thus was removed from further consideration.

TABLE 3-1

**CONSTITUENTS OF CONCERN AND CALCULATED CONCENTRATION LIMITS  
FORMER NAS MOFFETT FIELD**

COC	MDL <sup>a</sup> (µg/L)	SQL <sup>a</sup> (µg/L)	Calculated Concentration Limit (µg/L)
<b><i>Metals</i></b>			
Aluminum	6.2	300	870.00
Antimony	0.11	3	50,000.00
Arsenic	0.22	1	89.64
Barium	0.18	10	40.00
Beryllium	0.18	1	6.60
Cadmium	0.2	1	930.00
Chromium	0.19	1	71.50
Cobalt	0.2	1	230.00
Copper	0.19	1	5.15
Lead	0.19	1	810.00
Mercury	0.15	0.5	94.00
Nickel	0.22	1	820.00
Selenium	0.4	1	71.00
Silver	0.22	1	0.22
Thallium	0.19	1	21,300.00
Vanadium	0.21	1	200.00
Zinc	0.26	10	8,100.00
<b><i>VOCs</i></b>			
1,1,1,2-Tetrachloroethane	0.2	0.5	7,892.50
1,1,1-Trichloroethane	0.2	0.5	6,801.60
1,1,2,2-Tetrachloroethane	0.3	1	5,339.84
1,1,2-Trichloroethane	0.2	0.5	162.00
1,1-Dichloroethane	0.2	0.5	6.25
1,1-Dichloroethene	0.2	0.5	7.08
1,1-Dichloropropene	0.2	0.5	182.49
1,2,3-Trichlorobenzene	0.2	0.5	12,900.00
1,2,3-Trichloropropane	0.2	0.5	6.39
1,2,4-Trichlorobenzene	0.2	0.5	12,900.00
1,2,4-Trimethylbenzene	0.2	0.5	4,300.00
1,2-Dibromo-3-chloropropane	1	2	6,976.00
1,2-Dichlorobenzene	0.2	0.5	10,707.00
1,2-Dichloroethane	0.2	0.5	12,882.00
1,2-Dichloropropane	0.2	0.5	5.45
1,3,5-Trimethylbenzene	0.2	0.5	4,300.00
1,3-Dichlorobenzene	0.2	0.5	589.30
1,3-Dichloropropane	0.2	0.5	390.10
1,4-Dichlorobenzene	0.2	0.5	10,707.00
2,2-Dichloropropane	0.2	0.5	5.45

TABLE 3-1

**CONSTITUENTS OF CONCERN AND CALCULATED CONCENTRATION LIMITS  
FORMER NAS MOFFETT FIELD**

COC	MDL <sup>a</sup> (µg/L)	SQL <sup>a</sup> (µg/L)	Calculated Concentration Limit (µg/L)
2-Butanone	5	10	2,436.00
2-Chlorotoluene	0.2	0.5	12,900.00
2-Hexanone	1	10	11.88
4-Chlorotoluene	0.2	0.5	12,900.00
4-Methyl-2-pentanone	1	10	236.30
Acetone	2	10	156.00
Benzene	0.2	0.5	1,001.00
Bromobenzene	0.2	0.5	1,126.17
Bromochloromethane	0.2	0.5	5.88
Bromodichloromethane	0.2	0.5	6.47
Bromoform	0.2	1	6.78
Bromomethane	0.2	1	7,296.00
Carbon disulfide	0.2	0.5	0.21
Carbon tetrachloride	0.2	0.5	23,850.00
Chlorobenzene	0.2	0.5	1,117.14
Chloroethane	0.2	1	3.39
Chloroform	0.2	0.5	3.25
Chloromethane	0.2	1	4.98
cis-1,2-Dichloroethene	0.2	0.5	65.49
cis-1,3-Dichloropropene	0.2	0.5	0.20
Dibromochloromethane	0.2	0.5	17,280.00
Dibromomethane	0.2	0.5	6,848.00
Dichlorodifluoromethane	0.5	1	11,520.00
Ethylbenzene	0.2	0.5	2,160.32
Hexachlorobutadiene	0.2	0.5	320.00
Isopropylbenzene	0.2	0.5	4,300.00
m,p-Xylene	0.3	1	4.11
Methylene chloride	1	2	130,432.00
Naphthalene	0.3	0.5	272.60
n-Butylbenzene	0.2	0.5	4,300.00
n-Propylbenzene	0.2	0.5	4,300.00
o-Xylene	0.2	0.5	3.09
p-Isopropyltoluene	0.2	0.5	2,150.86
sec-Butylbenzene	0.2	0.5	4,300.00
Styrene	0.2	0.5	4,300.00
tert-Butylbenzene	0.2	0.5	4,300.00
Tetrachloroethene	0.2	0.5	23.13
Toluene	0.2	0.5	500,000.00
trans-1,2-Dichloroethene	0.2	0.5	70.21

TABLE 3-1

**CONSTITUENTS OF CONCERN AND CALCULATED CONCENTRATION LIMITS  
FORMER NAS MOFFETT FIELD**

COC	MDL <sup>a</sup> (µg/L)	SQL <sup>a</sup> (µg/L)	Calculated Concentration Limit (µg/L)
trans-1,3-Dichloropropene	0.2	0.5	0.20
Trichloroethene	0.2	0.5	9.49
Trichlorofluoromethane	0.2	1	15,360.00
Vinyl chloride	0.2	1	61.95
<b>PCBs</b>			
Aroclor-1016	0.25	1	1.40
Aroclor-1221	0.25	1	1.40
Aroclor-1232	0.25	1	1.40
Aroclor-1242	0.25	1	1.40
Aroclor-1248	0.25	1	1.40
Aroclor-1254	0.25	1	1.40
Aroclor-1260	0.25	1	1.40
<b>Pesticides</b>			
4,4'-DDD	0.03	0.1	36.00
4,4'-DDE	0.03	0.1	140.00
4,4'-DDT	0.02	0.1	0.10
Aldrin	0.01	0.05	13.00
alpha-BHC	0.01	0.05	340.00
alpha-Chlordane	0.01	0.05	0.40
beta-BHC	0.01	0.05	340.00
delta-BHC	0.01	0.05	340.00
Dieldrin	0.01	0.2	0.19
Endosulfan I	0.03	0.05	0.87
Endosulfan II	0.02	0.1	0.87
Endosulfan sulfate	0.02	0.1	0.87
Endrin	0.02	0.1	0.23
Endrin aldehyde	0.02	0.1	0.23
Endrin ketone	0.02	0.1	0.23
gamma-BHC (Lindane)	0.01	0.05	1.60
gamma-Chlordane	0.01	0.05	0.40
Heptachlor	0.01	0.05	0.36
Heptachlor epoxide	0.01	0.05	0.36
Methoxychlor	0.01	0.05	3.00
Toxaphene	1.25	3	1.25
<b>SVOCs</b>			
1,1'-Biphenyl	5	10	37.00
2,2'-Oxybis(1-chloropropane)	5	10	5.00
2,4,5-Trichlorophenol	5	10	1,100.00
2,4,6-Trichlorophenol	5	10	411.28

TABLE 3-1

**CONSTITUENTS OF CONCERN AND CALCULATED CONCENTRATION LIMITS  
FORMER NAS MOFFETT FIELD**

COC	MDL <sup>a</sup> (µg/L)	SQL <sup>a</sup> (µg/L)	Calculated Concentration Limit (µg/L)
2,4-Dichlorophenol	5	10	1,898.00
2,4-Dimethylphenol	5	10	3,650.00
2,4-Dinitrophenol	10	20	504.40
2,4-Dinitrotoluene	10	20	965.70
2,6-Dinitrotoluene	6	20	747.40
2-Chloronaphthalene	5	10	75.00
2-Chlorophenol	5	10	13.91
2-Methylnaphthalene	5	10	3,000.00
2-Methylphenol	5	10	11.31
2-Nitroaniline	6	20	149.64
2-Nitrophenol	5	10	727.50
3,3'-Dichlorobenzidine	5	10	3.30E+07
3-Nitroaniline	5	10	149.64
4,6-Dinitro-2-methylphenol	10	20	489.85
4-Bromophenyl-phenylether	7	20	7.00
4-Chloro-3-methylphenol	5	10	36.87
4-Chloroaniline	5	10	278.64
4-Chlorophenyl-phenylether	5	10	5.00
4-Methylphenol	5	10	130.00
4-Nitroaniline	5	10	149.64
4-Nitrophenol	5	10	950.60
Acenaphthene	5	10	71,000.00
Acenaphthylene	5	10	300.00
Acetophenone	2.5	10	420.00
Anthracene	5	10	3,000.00
Atrazine	10	20	18,963.00
Benzaldehyde	5	10	5.00
Benzo[a]anthracene	5	10	3,000.00
Benzo[a]pyrene	5	10	3,000.00
Benzo[b]fluoranthene	5	10	3,000.00
Benzo[g,h,i]perylene	5	10	3,000.00
Benzo[k]fluoranthene	5	10	3,000.00
bis(2-Chloroethoxy)methane	5	10	6,720.00
bis(2-Chloroethyl)ether	5	10	3,808.00
bis(2-Ethylhexyl)phthalate	10	20	30.00
Butylbenzylphthalate	5	10	340.00
Caprolactam	5	10	5.00
Carbazole	5	10	37.00
Chrysene	5	10	3,000.00



TABLE 3-1

**CONSTITUENTS OF CONCERN AND CALCULATED CONCENTRATION LIMITS  
FORMER NAS MOFFETT FIELD**

COC	MDL <sup>a</sup> (µg/L)	SQL <sup>a</sup> (µg/L)	Calculated Concentration Limit (µg/L)
di-n-Butylphthalate	5	10	340.00
di-n-Octylphthalate	5	10	340.00
Dibenz[a,h]anthracene	5	10	3,000.00
Dibenzofuran	5	10	37.00
Diethylphthalate	6	20	340.00
Dimethylphthalate	6	20	15.06
Fluoranthene	5	10	1,600.00
Fluorene	5	10	3,000.00
Hexachlorobenzene	6	20	12,900.00
Hexachlorocyclopentadiene	5	10	70.00
Hexachloroethane	5	10	9,400.00
Indeno(1,2,3-cd)pyrene	5	10	3,000.00
Isophorone	5	10	3,044.40
n-Nitroso-di-n-propylamine	5	10	698.40
n-Nitrosodiphenylamine	5	10	3.30E+07
Nitrobenzene	5	10	1,229.12
Pentachlorophenol	10	20	94.80
Phenanthrene	6	20	460.00
Phenol	5	20	904.80
Pyrene	5	20	3,000.00

**Notes:**

This table is abstracted from the *Technical Memorandum, Site 1 Groundwater Evaluation Process* (TtFW, 2004)

<sup>a</sup> The MDL and SQL are based on the specific analytical methods listed in Section 4.1 of the Tech Memo (TtFW, 2004). MDLs are likely to change slightly for each analysis, as the MDL depends on both sample and instrument conditions at the time of analysis. For those cases where the CCLs have been made equal to the MDL, the CCL may change slightly for each analysis event.

Shaded cells indicate that CCL was raised to meet available MDL.

**Abbreviations and Acronyms:**

µg/L – micrograms per liter  
 BHC – benzenhexachloride  
 CCL - calculated concentration limit  
 COC – constituent of concern  
 DDD – dichlorodiphenyldichloroethane  
 DDE – dichlorodiphenyltrichloroethene  
 DDT – dichlorodiphenyltrichloroethane  
 MDL – method detection limit  
 NAS – Naval Air Station  
 PCB – polychlorinated biphenyl  
 SQL – sample quantitation limit  
 SVOC – semivolatile organic compound  
 TtFW – Tetra Tech FW, Inc.  
 VOC – volatile organic compound

TABLE 3-2

**MARCH 2004 DETECTED ANALYTES IN GROUNDWATER  
FORMER NAS MOFFETT FIELD**

COC	71-S1-017 W1-1 3/29/04	71-S1-018 W1-15 3/29/04	71-S1-019 W1-19 3/30/04	71-S1-020 W1-19 (DUP) 3/30/04	71-S1-022 W1-14 3/30/04	71-S1-023 W1-12R 3/29/04	71-S1-024 W1-22 <sup>a</sup> 3/29/04	71-S1-025 W1-5 3/30/04	71-S1-026 W1-8 3/30/04	71-S1-027 W1-8 (DUP) 3/30/04	71-S1-028 W1-24 3/31/04	71-S1-029 W1-16 3/31/04
<b>Dissolved Metals ( µg/L) EPA Method 6010B</b>												
Aluminum	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U <sup>b</sup>	4,000 U <sup>b</sup>	4,000 U <sup>b</sup>	<b>3,800 J</b>
Barium	<b>66.6 J</b>	<b>157 J</b>	<b>81.8 J</b>	<b>83.4 J</b>	<b>145 J</b>	<b>75.8 J</b>	<b>313</b>	<b>485</b>	<b>121 J</b>	<b>164 J</b>	<b>246</b>	<b>384</b>
Chromium	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	<b>107 J</b>	400 U	400 U
Zinc	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	102 J	400 U	400 U
<b>VOCs ( µg/L) EPA Method 8260B</b>												
Acetone	10 U	10 U	10 U	10 U	10 U	10 U	6 J	10 UJ	10 UJ	10 UJ	10 U	10 U
Carbon disulfide	0.5 UJ	0.21 J	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U
<b>Pesticides ( µg/L) EPA Method 8081A</b>												
4,4'-DDD	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 UJ	0.1 UJ	0.039 J	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ
alpha-BHC	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.033 J	0.047 U	0.047 U	0.047 U	0.047 U	0.018 J
beta-BHC	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.047 U	0.029 J	0.047 U	0.047 U	0.047 U	0.047 J
delta-BHC	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 UJ	0.05 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.03 J
Dieldrin	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.1 U	0.05 J	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Heptachlor	0.047 UJ	0.047 UJ	0.013 J	0.047 U	0.047 UJ	0.05 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ
<b>General Chemistry (mg/L)</b>												
Nitrate as Nitrogen	0.14	0.1 U	0.1 U	0.1 U	0.118	1.11	0.527	1.68	2.95	2.99	0.215	0.1 U
Total organic carbon	6.07	12.90	9.41	9.00	11.80	6.48	95.30	11.30	10.00	10.00	22.00	18.00

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1.

<sup>b</sup> – Aluminum was detected but was not confirmed in the Trace-ICP run and lab contamination was suspected during dilution process. Therefore, the result was reported from the Trace-ICP re-run on 04/26/04.

Shading indicates concentration above the calculated concentration limit.

Metals analysis was conducted using EPA Test Method 6010B. Per the *Final Technical Memorandum Site 1 Groundwater Evaluation Process* (TtFW, 2004), future dissolved metals sampling was performed using EPA Test Method 200.8.

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

mg/L – milligrams per liter

BHC – benzenehexachloride

COC – constituent of concern

DDD – dichlorodiphenyldichloroethane

DUP – duplicate sample

EPA – U.S. Environmental Protection Agency

J – estimated value

NAS – Naval Air Station

TtFW – Tetra Tech FW, Inc.

U – analyte not detected above method reporting limit

UJ – analyte not detected above the estimated reporting limit

VOC – volatile organic compound

TABLE 3-3

**MAY 2004 DETECTED ANALYTES IN GROUNDWATER  
FORMER NAS MOFFETT FIELD**

COC	86-S1-001 W1-1 5/24/04	86-S1-002 W1-1 (DUP) 5/24/04	86-S1-003 W1-15 5/24/04	86-S1-004 W1-19 5/25/04	86-S1-006 W1-14 5/25/04	86-S1-007 W1-14 (DUP) 5/25/04	86-S1-008 W1-12R 5/25/04	86-S1-009 W1-22 <sup>a</sup> 5/26/04	86-S1-010 W1-5 5/26/04	86-S1-011 W1-8 5/26/04	86-S1-012 W1-24 5/26/04	86-S1-013 W1-16 5/26/04
<b>Dissolved Metals (mg/L) EPA Method 200.8 (unless otherwise noted)</b>												
Antimony	1.02 U	0.9 U	0.98 U	2.2	0.9U	0.9U	0.93 U	0.65 U	2.09	1.86 U	2.14	2.25 J
Arsenic	0.63 J	0.6 J	5.17	3.04 J	5.35 J	4.92J	2.24 J	2.56 J	3.62 J	1.57 J	6.78 J	6.43 J
Barium	<b>71.5</b>	<b>72J</b>	<b>181</b>	<b>86.6</b>	<b>152</b>	<b>155 J</b>	<b>78.2</b>	<b>357</b>	<b>524</b>	<b>130</b>	<b>214</b>	<b>229 J</b>
Beryllium	0.007 U	0.006 U	0.016 J	0.009 U	0.01 U	0.011U	0.006 U	0.023 J	0.007 U	0.006 U	0.014 J	0.013 J
Cadmium	0.171	0.185 J	0.006 U	0.414	0.011 J	0.009U	0.066	0.006 U	0.012 J	0.134	0.006 U	0.054 J
Chromium	0.72	0.64J	1.76	0.37 J	0.56	0.54J	0.46	3.84	0.8	0.43	1.23	0.49 J
Cobalt	3.49 J	3.41J	2.65	8.24 J	7.16 J	7.69 J	5.67 J	0.956 J	3.09 J	0.882 J	4.65 J	5.61 J
Copper	0.51	0.5 J	0.22	1.56	0.14 J	0.11 J	0.17 J	0.38	0.08 J	0.26	0.19 J	0.13 J
Lead	0.023 J	0.02J	0.018 U	0.076	0.02 J	0.022J	0.018 U	0.018 U	0.018 U	0.018 U	0.024 J	0.247 J
Nickel	19.4	19.6 J	6.06	13	9.47	9.72J	41	75.9	6.86	5.66	14.8	14.4 J
Silver	0.054	0.033J	0.011 J	0.02 J	0.016 J	0.033 J	0.038 J	0.01 U	0.01 U	0.034 J	0.016 J	<b>0.239 J</b>
Thallium	0.066	0.065J	0.001 U	0.067	0.006 U	0.006U	0.022 J	0.002 U	0.016 U	0.025 J	0.008 U	0.008 U
Vanadium (EPA Method 6010B)	11.8	6 U	6 U	6 U	9 J	6 U	6 U	6 U	10.2	6 U	6.8 J	6 U
Zinc	7020	<b>8810<sup>b</sup></b>	2.38 J	3.4 J	1.22 J	1.19J	41.3 J	26.3 J	0.87 J	3.74 J	1.17 J	0.46 J
<b>VOCs (µg/L) EPA Method 8260B</b>												
Acetone	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	2.9 J	10 U	10 U	2.8 J	10 U
Carbon disulfide	0.5 U	0.5 U	<b>0.24 J</b>	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.54	0.71	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
<b>Pesticides (µg/L) EPA Method 8081A</b>												
alpha-BHC	0.047 U	0.047 U	0.061	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
beta-BHC	0.047 U	0.047 U	0.38	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
gamma-Chlordane	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.053	0.047 U	0.047 U	0.047 U	0.047 U
<b>SVOCs (mg/L) EPA Method 8270C</b>												
bis(2-Ethylhexyl)phthalate	19 U	<b>42</b>	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Caprolactam	9.4 U	<b>6.2 J</b>	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

**Notes:**<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1.<sup>b</sup> – Duplicate sample was re-run at the request of the project chemist. All re-run values were less than the calculated concentration limit, but are not reported because not all of the appropriate laboratory quality control documentation was completed.

Shading indicates concentration above the calculated concentration limit.

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

mg/L – milligrams per liter

BHC – benzenhexachloride

COC – constituent of concern

DUP – duplicate sample

EPA – U.S. Environmental Protection Agency

J – estimated value

NAS – Naval Air Station

SVOC – semivolatile organic compound

U – analyte not detected above method reporting limit

UJ – analyte not detected above the estimated reporting limit

VOC – volatile organic compound

TABLE 3-4

**NOVEMBER 2004 DETECTED ANALYTES IN GROUNDWATER  
FORMER NAS MOFFETT FIELD**

COC	86-S1-056 W1-1R 11/8/04	86-S1-057 W1-15 11/8/04	86-S1-058 W1-19 11/8/04	86-S1-060 W1-14 11/8/04	86-S1-061 W1-12R 11/9/04	86-S1-062 W1-22 <sup>a</sup> 11/9/04	86-S1-063 W1-5 11/9/04	86-S1-064 W1-5 (DUP) 11/9/04	86-S1-065 W1-8 11/10/04	86-S1-066 W1-8 (DUP) 11/10/04	86-S1-067 W1-24 11/10/04	86-S1-068 W1-16 11/10/04
<b>Dissolved Metals (mg/L) EPA Method 200.8</b>												
Aluminum	50 U	50 U	50 U	50 U	50 U	50.2	50 U	50 U	50 U	50 U	50 U	50 U
Antimony	4.22	4.89	4.82 J	4.49	4.94	1.94 U	2.2 U	2.81 UJ	3.4 U	3.65 UJ	2.72 U	1.64 U
Arsenic	5.75 J	7.96 J	2.82 J	7.53 J	3.31 J	2.2 J	1.74 J	1.79 J	3.81 J	3.88 J	11.5 J	4.91 J
Barium	111	126	81.3 J	147	60.5	1160	481	477 J	149	141 J	250	417
Beryllium	0.005 J	0.015 J	0.003 J	0.007 J	0.005 J	0.022 J	0.005 J	0.004 J	0.004 J	0.008 J	0.015 J	0.009 J
Cadmium	0.003 J	0.006 U	0.421 J	0.014 J	0.041	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.005 J	0.006 J
Chromium	0.25 J	0.51 J	0.17 J	0.44 J	0.26 J	6.19 J	0.64 J	0.62 J	0.73 J	0.63 J	1.65 J	0.63 J
Cobalt	8.68 J	4.36 J	11 J	6.09 J	3.28 J	0.101 J	0.727 J	1.15 J	0.775 J	1.28 J	1.98 J	5.93 J
Copper	0.3 J	0.13 J	0.38 J	0.23 J	0.24 J	0.37 J	0.11 J	0.15 J	0.14 J	0.16 J	0.17 J	0.17 J
Lead	0.017 J	0.018 U	0.039 J	0.145	0.012 J	0.213	0.009 J	0.009 U	0.143	0.009 U	0.021	0.009 U
Nickel	19.2	7.6	12.7 J	7.6	8.35	21.3	4.04	4.08 J	4.24	4.1 J	10.2	11.7
Silver	0.092	0.01 U	0.011 J	0.012 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Thallium	0.037	0.001 U	0.062 J	0.001 U	0.05	0.001 J	0.007 J	0.001 J	0.001 U	0.001 U	0.002 J	0.001 U
Zinc	4.17 J	22.7 J	37.4 J	29.5 J	68.6 J	1320 J	0.79 J	0.5 J	4.92 J	3.2 J	2.22 J	0.42 J
<b>VOCs (µg/L) EPA Method 8260B</b>												
Carbon disulfide	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 UJ	0.23 J	0.5 UJ	0.23 J	0.5 UJ	0.5 UJ
<b>Pesticides (µg/L) EPA Method 8081A</b>												
alpha-BHC	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.011 J	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
beta-BHC	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.14	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
delta-BHC	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.029 J	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Endrin	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U	0.032 J	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Heptachlor epoxide	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.034 J	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U

**Notes:**

Shading indicates concentration above the calculated concentration limit.

<sup>a</sup> – Well W1-22 is a collection trench well and not representative of groundwater at Site 1.**Abbreviations and Acronyms:**

µg/L – micrograms per liter

mg/L – milligrams per liter

BHC – benzenehexachloride

COC – constituent of concern

DUP – duplicate sample

EPA – Environmental Protection Agency

J – estimated value

NAS – Naval Air Station

U – analyte not detected above method reporting limit

UJ – analyte not detected above the estimated reporting limit

VOC – volatile organic compound

Also during the March 2004 sampling event, only one dissolved metal (barium), one VOC (acetone), and three pesticides (4,4-DDD, alpha-BHC, and dieldrin) were detected in samples from trench well W1-22 at concentrations greater than their respective laboratory reporting levels (see Table 3-2).

### 3.2.2 May 2004 Sampling Event

During the May 2004 sampling event, every dissolved metal (analyzed by EPA Method 200.8), three VOCs (acetone, carbon disulfide, and toluene), three pesticides (alpha-BHC, beta-BHC, and gamma-chlordane), and two SVOCs (bis[2-ethylhexyl]phthalate [BeP] and caprolactam) were detected at concentrations greater than their respective laboratory detection levels (see Table 3-3). The following details how barium, silver, zinc, carbon disulfide, BeP and caprolactam exceeded their respective CCLs:

- The barium CCL was exceeded in samples from every monitoring well. Barium occurred in samples from a background well or was below historical background values. Thus, it was removed from further consideration.
- The silver CCL was exceeded at an estimated value only in a sample from downgradient monitoring well W1-16. The estimated value for silver was less than the historical background and thus was removed from further consideration.
- The zinc CCL was exceeded only in the duplicate sample for monitoring well W1-1. However, the duplicate sample for monitoring well W1-1 was re-run at the request of the TtFW Project Chemist. All re-run values were less than their respective CCLs, which was interpreted to suggest that there were difficulties with the initial analysis of groundwater from monitoring well W1-1. Thus, zinc was considered to not have exceeded its CCL.
- The carbon disulfide CCL was exceeded at an estimated value only in a sample from downgradient monitoring well W1-15. However, the reported value was less than historical background levels and therefore was removed from further consideration.
- The BeP CCL was exceeded only in the duplicate sample from downgradient monitoring well W1-1. BeP is often a laboratory contaminant. However, since this was the first time SVOCs were sampled at Site 1, there was no historical database for comparison. Therefore, this compound was placed on the observation list for confirmation of a CCL exceedance over the next two rounds in the supplemental groundwater sampling for an SVOC baseline. BeP was not detected in monitoring well W1-1 in the July and August supplemental groundwater sampling events. Therefore, the May CCL exceedance for this compound is treated as a false positive, and this compound was removed from further consideration.
- The caprolactam CCL was exceeded only in the duplicate sample from monitoring well W1-1. Because this was the first time SVOCs were sampled at Site 1, there was no historical database for comparison. This compound was placed on the observation list for confirmation of a CCL exceedance over the next two rounds in the supplemental groundwater sampling for an SVOC baseline. Caprolactam was not

detected in well W1-1 in the July and August supplemental groundwater sampling events. Therefore, the May CCL exceedance for this compound is treated as a false positive, and this compound was removed from further consideration.

Also during the May 2004 sampling event, eight dissolved metals (arsenic, barium, beryllium, chromium, cobalt, copper, nickel, and zinc), one VOC (acetone), and one pesticide (gamma-chlordane) were detected in samples from trench well W1-22 at concentrations greater than their respective laboratory detection levels (see Table 3-3).

### **3.2.3 November 2004 Sampling Event**

During the November 2004 sampling event, every dissolved metal (analyzed by EPA Method 200.8), one VOC (carbon disulfide), and five pesticides (alpha-BHC, beta-BHC, delta-BHC, endrin, and heptachlor epoxide) were detected at concentrations greater than their respective laboratory detection levels (see Table 3-2, page 3 of 3). The following details how barium and carbon disulfide exceeded their respective CCLs:

- The barium CCL was exceeded in samples from every monitoring well. Barium either occurred in samples from a background well or was below historical background values. Thus, it was removed from further consideration.
- The carbon disulfide CCL was exceeded at estimated values in only the duplicate samples from background monitoring wells W1-5 and W1-8. Both exceedances occurred in samples from background wells and therefore were removed from further consideration.

Also during the November 2004 sampling event, 11 dissolved metals (aluminum, arsenic, barium, beryllium, chromium, cobalt, copper, lead, nickel, thallium, and zinc), and five pesticides (alpha-BHC, beta-BHC, delta-BHC, endrin, and heptachlor epoxide) were detected in samples from trench well W1-22 at concentrations greater than their respective laboratory detection levels (see Table 3-4).

### **3.2.4 Supplemental Sampling Events**

There were no detections for dissolved mercury or for any SVOC greater than the laboratory reporting level for the supplemental groundwater samples collected in July, August, September, and December 2004 (see Appendix B).

## **4.0 METHANE MONITORING**

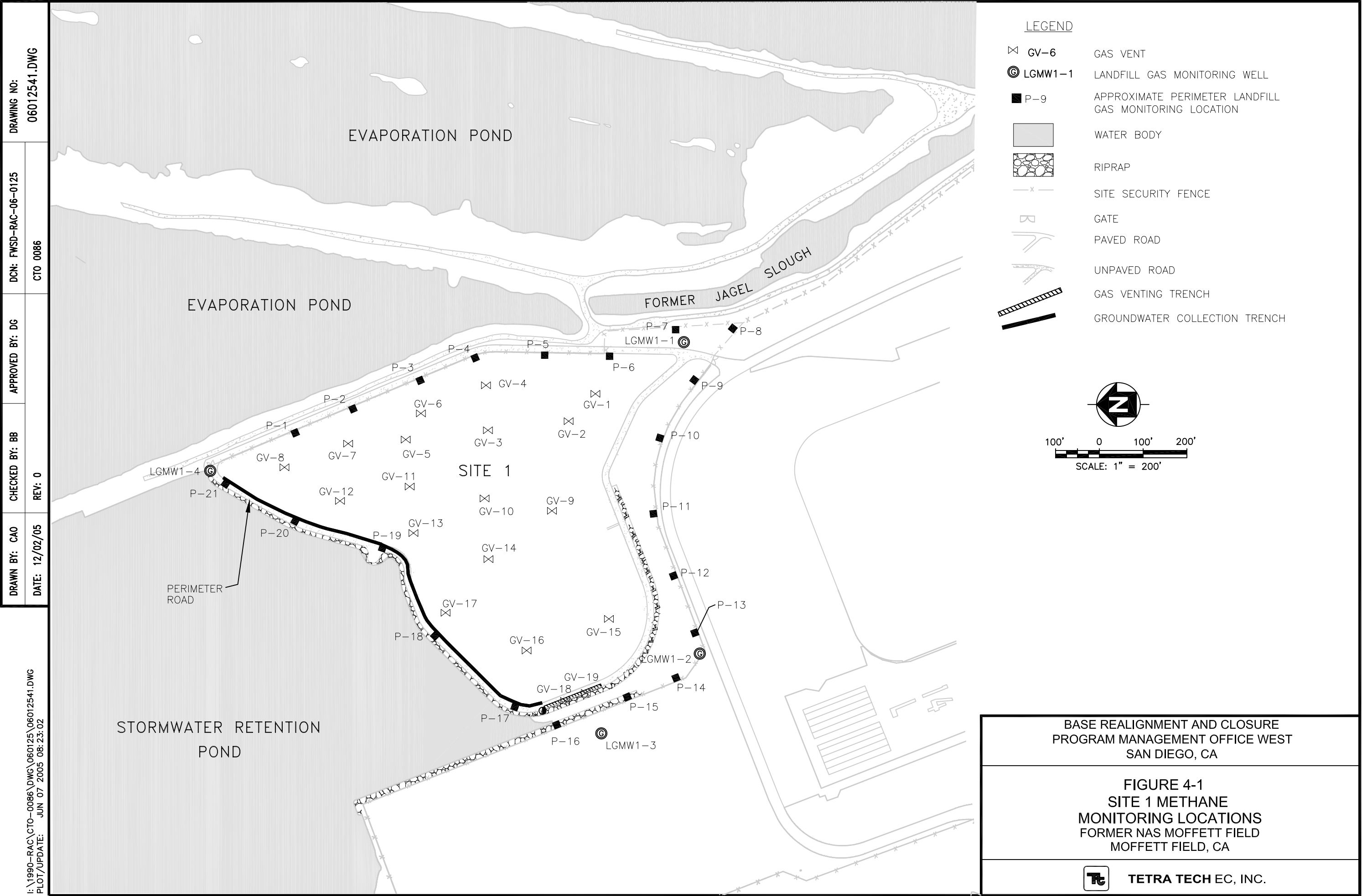
As part of landfill monitoring activities, methane monitoring was conducted for 19 passive gas vent (GV) wells within the Site 1 Landfill and 4 landfill gas monitoring wells on the perimeter of the landfill. Methane monitoring is also performed at the perimeter of the site at 150-foot intervals. The monitoring program was conducted in accordance with Section 6 of the *Site 1 Landfill Final Closure Plan and Post-Closure Maintenance Plan* (Tetra Tech EM, Inc., 1998), Section 5.2 of the *Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2) Sampling and Analysis Plan* (International Technology Corporation, 2000), and the *Final Sampling and Analysis Plan Addendum for Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2)* (Foster Wheeler Environmental Corporation, 2001a). The monitoring program was conducted in March, May, and November 2004, using a Landtec GA 90 portable methane monitor. Methane monitoring locations are shown in Figure 4-1.

### **4.1 LANDFILL GAS MONITORING WELL AND GAS VENT RESULTS**

The results of landfill gas monitoring well and GV monitoring are shown in Table 4-1. In general, the percentages of methane gas concentrations within the landfill were slightly lower in November 2004 than in March or May 2004 and are similar to historical concentrations. Methane concentrations were highest in March 2004, near the northern portion of the landfill (GV-8 at 57.9 percent), followed by a detected concentration of 52.1 percent in GV-11, which is near the center of the landfill. None of the perimeter wells (LGMW1-1 through LGMW1-4) showed concentrations of methane above the concentrations limit of 5 percent (all readings were zero percent), as specified in 27 Code of Federal Regulations, Section 20921(a)(2) and as identified in the *Moffett Federal Airfield Final Operable Unit 1 Record of Decision* (Navy, 1997). Appendix F contains methane monitoring data graphs for the 19 GV wells and the 4 landfill gas monitoring wells.

### **4.2 PERIMETER GAS MONITORING RESULTS**

Perimeter monitoring points (P-1 through P-21) are located along the perimeter fence line at approximate 150-foot intervals. Methane was not detected at any of the perimeter monitoring locations in March, May, or November 2004.



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PLOT/UPDATE: JUN 07 2005 08:23:02



TABLE 4-1

**2004 LANDFILL GAS MONITORING WELL AND  
GAS VENT METHANE MONITORING RESULTS  
FORMER NAS MOFFETT FIELD**

Monitoring Location	Percent Methane <sup>1</sup>		
	March 23, 2004	May 27, 2004	November 11, 2004
GV-1	0.0	0.0	1.4
GV-2	0.0	0.0	0.0
GV-3	0.0	0.0	0.0
GV-4	0.0	0.0	0.0
GV-5	42.0	10.0	4.4
GV-6	0.0	0.0	0.0
GV-7	37.0	36.3	24.1
GV-8	57.9	29.0	16.7
GV-9	0.0	0.0	0.0
GV-10	1.1	25.6	24.0
GV-11	51.1	52.1	31.2
GV-12	6.2	2.2	0.0
GV-13	0.5	0.0	0.0
GV-14	0.0	0.0	0.0
GV-15	0.0	0.0	0.0
GV-16	0.0	0.0	0.0
GV-17	0.0	0.0	0.0
GV-18	0.0	0.0	0.0
GV-19	0.0	0.0	0.0
LGMW1-1	0.0	0.0	0.0
LGMW1-2	0.0	0.0	0.0
LGMW1-3	0.0	0.0	0.0
LGMW1-4	0.0	0.0	0.0

**Notes:**

<sup>1</sup> - Methane concentrations were measured using a Landtec GA 90 portable methane meter. Accuracy is  $\pm 0.3\%$  by volume at 5% concentration, and  $\pm 1.9\%$  by volume at 60% concentration.

**Abbreviations and Acronyms:**

GV – gas vent

LGMW – landfill gas monitoring well

NAS - Naval Air Station

## 5.0 CONCLUSIONS

Depth to groundwater measurements were collected from Site 1 Landfill monitoring wells, piezometers, and collection trench wells on:

- March 22, 2004
- May 24, 2004
- November 8, 2004
- July 6, 2004
- August 18, 2004
- September 27, 2004
- December 13, 2004

Groundwater elevations for all Site 1 Landfill measurements were below sea level for 2004. In general, the groundwater elevations are similar to previous years. The groundwater flows from north to south at the Site 1 Landfill. The gradient from north to south was approximately:

- 0.0007 feet per foot (ft/ft) in March 2004
- 0.0008 ft/ft in May 2004
- 0.0008 ft/ft in July 2004
- 0.0007 ft/ft in August 2004
- 0.0008 ft/ft in September 2004
- 0.0005 ft/ft in November 2004
- 0.0008 ft/ft in December 2004

The following water level trends were observed in 2004:

- Most monitoring wells had seasonal high-water levels in March.
- Most monitoring wells had seasonal low-water levels in August.

The seasonal water level fluctuation was on the order of 0.5 feet.

The water levels in monitoring well pair W1-19/PZ1-18 show continuous upward potential for all but the August 18, 2004, measurement since 1999. However, the water level in monitoring well W1-19 on August 18, 2004, is not consistent with the long-term trend. The water levels in monitoring well pair W1-20/PZ1-21 show a slight upward potential.

Regularly scheduled groundwater sampling was conducted at Site 1 in March, May, and November 2004. In addition, supplemental groundwater sampling was completed in July, August, September, and December 2004. The supplemental groundwater sampling was conducted to develop the database required for the evaluation of dissolved mercury and semivolatile organic compounds (SVOCs). Groundwater samples were collected from nine monitoring wells, as well as from collection trench well W1-22. Collection trench well W1-23 could not be sampled due to insufficient water.

Analytical testing during 2004 changed after the approval of the *Final Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) (Tetra Tech FW, Inc. [TtFW], 2004). After the March sampling event, the following changes took place:

- Dissolved metals analyses, which previously had been performed using United States Environmental Protection Agency (EPA) Method 6010B, changed to EPA Method 200.8 (to lower the method detection level), and dissolved mercury using EPA Method 7470A was added.
- SVOCs analyses by EPA Method 8270C were added.

Twelve samples, including two duplicate samples, were collected from nine groundwater monitoring wells and one collection trench well at the Site 1 Landfill for each sampling event. The analytical results from the collection trench well are not considered representative of chemical concentrations of the shallow aquifer (see Section 3.1.1).

Seven metals were detected at least once in 2004, with at least three historical detected concentrations (1999 through 2004) in samples from every Site 1 Landfill groundwater monitoring well. With the exception of barium concentrations in samples from monitoring wells W1-5, W1-8, and W1-12/W1-12R, there were flat visual trends in the concentrations. Monitoring wells W1-5, W1-8, and W1-12/W1-12R, which are all upgradient (background wells) show an increasing concentration trend. There were an additional six metals that were found in samples from most, but not all of the Site 1 Landfill monitoring wells. There was a flat visual trend in the concentrations for these metals. All of these metals are found in seawater (Hem, 1971) and are considered part of the composition of natural groundwater at the Site 1 Landfill.

Seven additional metals were detected at least once in 2004, with at least three historical detected concentrations (1999 through 2004) in samples from a few of the Site 1 groundwater monitoring wells. There were flat visual trends in the concentrations. All of these metals are also found in seawater (Hem, 1971) and are considered part of the composition of natural groundwater at the Site 1 Landfill.

Carbon disulfide was detected once in 2004, with at least three historical detected concentrations (1999 through 2004) in samples from groundwater monitoring well W1-5 (an upgradient monitoring well). There was a flat visual trend in the carbon disulfide concentrations in samples

from monitoring well W1-5. Carbon disulfide is ubiquitous throughout the environment, and is likely naturally occurring in the reducing conditions underlying the Site 1 Landfill (TtFW, 2004).

Toluene was detected once in 2004, with at least three historical detected concentrations (1999 through 2004) in samples from groundwater monitoring well W1-1/W1-1R (a downgradient monitoring well). There was a flat visual trend in the toluene concentrations in samples from monitoring well W1-1/W1-1R. No other volatile organic compounds (VOCs), SVOCs, or pesticides were detected in 2004 with at least three historically detected concentrations (1999 through 2004) in samples from a Site 1 groundwater monitoring well.

During the March 2004 sampling event, only four dissolved metals (aluminum, barium, chromium, and zinc), two VOCs (acetone and carbon disulfide), and six pesticides (4,4-dichlorodiphenyldichloroethane [4,4-DDD], alpha-benzene hexachloride [alpha-BHC], beta-BHC, delta-BHC, dieldrin, and heptachlor) were detected in samples from monitoring wells at concentrations greater than their respective laboratory reporting levels. The concentrations of aluminum, barium, and chromium exceeded their respective calculated concentration limits (CCLs) in samples from a monitoring well. Although aluminum exceeded its CCL in a sample from a downgradient monitoring well (greater than historical background levels), it was not detected in samples from any monitoring well exceeding a CCL in May or November and thus is considered a false positive (see Section 3.2.1). The barium exceedances either occurred in samples from a background well or were less than historical background values and thus were removed from further consideration. The chromium CCL was exceeded in a sample from a background well, and thus was removed from further consideration.

Also during the March 2004 sampling event, only one dissolved metal (barium), one VOC (acetone), and three pesticides (4,4-DDD, alpha-BHC, and dieldrin) were detected in samples from trench well W1-22 at concentrations greater than their respective laboratory reporting levels.

During the May 2004 sampling event, every dissolved metal, three VOCs (acetone, carbon disulfide, and toluene), three pesticides (alpha-BHC, beta-BHC, and gamma-chlordane), and two SVOCs (bis[2-ethylhexyl]phthalate [BeP] and caprolactam) were detected at concentrations greater than their respective laboratory detection levels. The barium, silver, zinc, carbon disulfide, BeP, and caprolactam CCLs were exceeded in samples from a monitoring well. Barium occurred in a sample from a background well or was below historical background values. Thus, it was removed from further consideration. The silver and carbon disulfide exceedances were less than historical background and thus were removed from further consideration. The zinc CCL was exceeded only in a duplicate sample and was re-run, with all re-run values being less than the CCL. The initial zinc analysis was interpreted to be in error. Both the BeP and caprolactam CCL exceedances were only in the duplicate sample. BeP and caprolactam were not detected in the regular sample collected from this well at the same time as the duplicate sample. In addition, BeP is often a laboratory contaminant. However, since this was the first time SVOCs

were sampled at Site 1, there was no historical database for comparison. BeP and caprolactam were not detected in the July and August supplemental groundwater sampling events. The May CCL exceedance for these compounds is treated as a false positive, and these compounds were removed from further consideration.

Also during the May 2004 sampling event, eight dissolved metals (arsenic, barium, beryllium, chromium, cobalt, copper, nickel, and zinc), one VOC (acetone), and one pesticide (gamma-chlordane) were detected in samples from trench well W1-22 at concentrations greater than their respective laboratory detection levels.

During the November 2004 sampling event, every dissolved metal, one VOC (carbon disulfide), and five pesticides (alpha-BHC, beta-BHC, delta-BHC, endrin, and heptachlor epoxide) were detected at concentrations greater than their respective laboratory detection levels. Only barium and carbon disulfide exceeded their respective CCLs in samples from a monitoring well. Barium either occurred in a sample from a background well or was below historical background values. Thus, it was removed from further consideration. The carbon disulfide CCL was exceeded at estimated values in only duplicate samples. Both exceedances occurred in samples from background wells and therefore were removed from further consideration.

Also during the November 2004 sampling event, 11 dissolved metals (aluminum, arsenic, barium, beryllium, chromium, cobalt, copper, lead, nickel, thallium, and zinc), and five pesticides (alpha-BHC, beta-BHC, delta-BHC, endrin, and heptachlor epoxide) were detected in samples from trench well W1-22 at concentrations greater than their respective laboratory detection levels.

There were no detections of dissolved mercury or of any SVOC greater than the laboratory reporting level for the supplemental groundwater samples collected in July, August, September, and December 2004. In accordance with the Tech Memo (TtFW, 2004), analytical results obtained throughout 2004 indicate that there has not been a release from the landfill to groundwater.

As part of landfill monitoring activities, methane monitoring was conducted for 19 passive gas vent wells within the Site 1 Landfill and 4 landfill gas monitoring wells on the perimeter of the landfill. Gas monitoring is also performed at the perimeter of the site at 150-foot intervals. No landfill gas is migrating off site.

In general, the percentages of methane gas concentrations within the landfill were slightly lower in November 2004 than in March or May 2004 and are similar to historical concentrations. Methane concentrations were highest in May 2004, near the northern portion of the landfill (GV-8 at 57.9 percent), followed by a detected concentration of 52.1 percent in GV-11, which is near the center of the landfill. None of the perimeter wells showed concentrations of methane above the concentrations limit of 5 percent (all readings were zero percent). Methane was not detected at any of the perimeter monitoring locations in March, May, or November 2004.

As part of landfill maintenance activities, the landfill is routinely inspected and repaired, as necessary. The landfill cover is intact and functional.

## 6.0 REFERENCES

- Department of the Navy (Navy). 1997. *Moffett Federal Airfield Final Operable Unit 1 Record of Decision*. Moffett Federal Airfield, Moffett Field, California. August 1.
- Foster Wheeler Environmental Corporation (FWENC). 2001a. *Final Sampling and Analysis Plan Addendum for Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2)*. June 5.
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- Hem, John D. 1971. *Study and Interpretation of the Chemical Characteristics of Natural Water*. Geological Survey Water-Supply Paper 1473. Second Edition.
- International Technology Corporation (IT). 1993. *Remedial Investigation Report, Operable Unit 1, Landfill Sites 1 and 2*. NAS Moffett Field. March.
- \_\_\_\_\_. 2000. *Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2) Sampling and Analysis Plan*. November.
- Tetra Tech EM, Inc. (TtEMI). 1998. *Site 1 Landfill Final Closure Plan and Post-Closure Maintenance Plan*. Moffett Field, California. July 26.
- \_\_\_\_\_. 2000. *Draft Northern Channel Physical Characterization Report*. February.
- Tetra Tech FW, Inc. (TtFW). 2004. *Final Technical Memorandum, Site 1 Groundwater Evaluation Process*. April.

# **APPENDIX A**

## **FIELD SAMPLING DATA**



## **REGULARLY SCHEDULED SAMPLING**

**MARCH 2004**

Date 3-22-04

Well Name <u>W1-1</u>	Screen Interval <u>15-25</u>	
Project <u>CTD 71-Site 1, Q1/04</u>	Station Elevation <u>          </u> GND <u>          </u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990-071E</u>	Static Water Level (from TOC) / Time <u>4.87-0819</u> <u>4.87-0820</u> <u>4.88-0821</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>4.87</u>	
Sample Date <u>3-29-04</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>
Sampling Personnel <u>B. Ogle</u>	Reference Elevation <u>          </u>	PID Readings (TOC) <u>0 ppm</u>
<u>M. Ramos</u>	Static Elevation <u>          </u>	Notes <u>          </u>
	Well Depth MEAS <u>25.90</u> RPTD <u>          </u>	Feet of Water <u>          </u>
Sample ID <u>71-S1-017</u>	Depth of Bottom of Tubing <u>20'</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>4.92</u>	

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $<0.33$  foot

### SAMPLE PARAMETERS

3x VOCs	2x Pesticide	2x PCBs	1x T. Metals	1x D. Metals	1x TOC/NI-NA		
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## SAMPLE RATE

0.1 4m	0.3 4m	0.3 4m	0.3 4m	0.3 4m	0.3 4m		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Bailed water from vault

Remarks: VOCs effervesced. D. Metals were filtered in field. Mercury included in analysis

## FIELD EQUIPMENT

TEST EQUIPMENT		
pH Meter	Hydrolab	Serial Number 37995
Temperature Meter		Serial Number
Turbidity Meter		Serial Number
Spec. Elec. Cond. Meter		Serial Number
ORP Meter		Serial Number
D.O. Meter		Serial Number
Interface Probe	Solinst	Serial Number 27582
PID/OVA	MiniRAE 200D	Serial Number 00320
Pump	Geotech	Serial Number A01006563
Filter Apparatus	Geotech 0.45 micron	
		Number of Bottles 10
		Field Notebook Page 119
		Sample Method Low-flow grab
		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3-22-04

Well Name <u>W1-5</u>	Screen Interval <u>14.5-19.5</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTD 71-Site 1, Q1/04</u>	Static Water Level (from TOC) / Time <u>4.99-0909</u> <u>5.00-0910</u>	<u>5.01-0911</u>	
Project No. <u>1990-071E</u>	Average Water Level (from TOC) <u>5.00</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>	
Sample Date <u>3-30-04</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0 ppm</u>	
Sampling Personnel <u>B. Dale</u> <u>M. Ramos</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
	Well Depth MEAS <u>21.24</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>71-S1-025</u>	Depth of Bottom of Tubing <u>17.0</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.11</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1342	0.3	15.7	6.52	174	18.98	24199	0.0	0.25			5.13	
1245	0.3	7.0	6.60	113	19.17	22964	0.0	0.5			5.13	
1348	0.3	5.0	6.64	11	19.23	22552	0.0	0.8			5.12	
1351	0.3	4.3	6.66	-13	19.32	24993	0.0	1.0			5.12	
1354	0.3	4.0	6.64	-33	19.36	22761	0.0	1.2			5.13	
1357	0.3	3.7	6.65	-44	19.37	22587	0.0	1.5			5.13	
1400	0.3	3.6	6.63	-43	19.38	22309	0.0	1.7			5.13	
1403	0.3	3.5	6.63	-44	19.38	22298	0.0	2.0			5.12	
1405	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3x VOCs	2x Pesticide	2x PCBs	1x T. Metals	1x D. Metals	1x TOC	NI-NA		
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## SAMPLE RATE

0.1 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOCs effervesced. D. Metal were field filtered

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>37995</u>	Number of Bottles <u>10</u>
Temperature Meter <u>      </u>	Serial Number <u>      </u>	
Turbidity Meter <u>      </u>	Serial Number <u>      </u>	
Spec. Elec. Cond. Meter <u>      </u>	Serial Number <u>      </u>	Field Notebook <u>Page 126</u>
ORP Meter <u>      </u>	Serial Number <u>      </u>	Sample Method <u>low-flow grab</u>
D.O. Meter <u>      </u>	Serial Number <u>      </u>	
Interface Probe <u>Solinst</u>	Serial Number <u>27582</u>	
PID/OVA <u>MiniRAE 2000</u>	Serial Number <u>00320</u>	
Pump <u>Geotech</u>	Serial Number <u>A01006563</u>	
Filter Apparatus <u>Geotech 0.45 micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3-22-04

Well Name <u>W1-8</u>	Screen Interval <u>13-18</u>	Station Elevation <u>GND</u> TOC <u>5.11-0914</u> 5.11-0915 5.12-0916	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTD 71-Site 1, Q1/04</u>	Static Water Level (from TOC) / Time <u>5.11-0914</u>	Average Water Level (from TOC) <u>5.11</u>	
Project No. <u>1990-071E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>	
Well Location <u>Site 1</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0 ppm</u>	
Sample Date <u>3-30-04</u>	Static Elevation <u></u>	Notes <u></u>	
Sampling Personnel <u>B. Dale</u> <u>M. Ramos</u>	Well Depth MEAS <u>22.56</u> RPTD <u></u>	Feet of Water <u></u>	
Sample ID <u>71-S1-026</u>	Depth of Bottom of Tubing <u>15.5</u>		
Duplicate ID <u>71-S1-027</u>	Depth to Water (w/ Tubing in Well) <u>5.18</u>		

PURGING												
Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1449	0.3	12.1	6.72	122	19.35	56993	0.0	0.2			5.19	
1452	0.3	6.4	6.79	119	18.46	57035	0.0	0.5			5.20	
1465	0.3	5.2	6.74	118	18.41	56972	0.0	0.8			5.19	
1458	0.3	4.6	6.78	115	18.42	56877	0.0	1.0			5.18	
1501	0.3	3.5	6.77	102	18.41	57213	0.0	1.2			5.20	
1504	0.3	3.5	6.79	100	18.42	57240	0.0	1.5			5.20	
1507	0.3	3.5	6.79	99	18.45	57270	0.0	1.75			5.19	
1510	Collect	Sample										
1540	Collect	Duplicate										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3x VOCs	2x Pesticide	2x PCBs	1x T. Metals	1x D. Metals	1x TOC/Ni-NA		
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## SAMPLE RATE

0.1 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOCs effervesced. D. Metals were field filtered. Field duplicate

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>37995</u>	Number of Bottles <u>20</u>
Temperature Meter <u></u>	Serial Number <u></u>	
Turbidity Meter <u></u>	Serial Number <u></u>	
Spec. Elec. Cond. Meter <u></u>	Serial Number <u></u>	Field Notebook <u>Page 127</u>
ORP Meter <u></u>	Serial Number <u></u>	Sample Method <u>low-flow grab</u>
D.O. Meter <u></u>	Serial Number <u></u>	
Interface Probe <u>Solinst</u>	Serial Number <u>27582</u>	
PID/OVA <u>MiniRAE 2000</u>	Serial Number <u>00320</u>	
Pump <u>Geotech</u>	Serial Number <u>A01006563</u>	
Filter Apparatus <u>Geotech 0.45 micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3-22-04

Well Name <u>W1-12R</u>	Screen Interval <u>12.5 - 22.5</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTD 71-Site 1, Q1/04</u>	Static Water Level (from TOC) / Time <u>2.37 - 0859</u> <u>2.38 - 0900</u> <u>2.39 - 0901</u>	Average Water Level (from TOC) <u>2.38 - 0900</u>	
Project No. <u>1990-071E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Well Location <u>Site 1</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0ppm</u>	
Sample Date <u>3-24-04</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
Sampling Personnel <u>B. Ogle</u> <u>M. Ramos</u>	Well Depth MEAS <u>25.70</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>71-S1-023</u>	Depth of Bottom of Tubing <u>17.5</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>2.40</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1355	0.3	16.1	6.96	207	24.13	44071	0.0	0.2			2.40	
1358	0.3	6.1	6.98	201	24.20	43510	0.0	0.4			2.39	
1401	0.3	4.7	6.99	196	24.21	40011	0.0	0.7			2.41	
1404	0.3	4.2	6.99	194	24.15	40306	0.0	1.0			2.41	
1407	0.3	3.5	7.04	190	24.03	44875	0.0	1.2			2.42	
1410	0.3	3.4	7.02	187	23.94	34322	0.0	1.5			2.41	
1413	0.3	3.3	7.05	184	24.05	40862	0.0	1.7			2.42	
1416	0.3	3.2	7.10	182	24.05	41031	0.0	2.0			2.41	
1419	0.3	3.3	7.08	185	23.98	41093	0.0	2.2			2.40	
1425	Collect	Sample										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3x VOCs	2x Pesticide	2x PCBs	1x T. Metals	1x D. Metals	1x TOC	NI-NA	
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## SAMPLE RATE

0.1 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOCs effervesced. D. Metals were field filtered

## FIELD EQUIPMENT

pH Meter Hydrolab  
 Temperature Meter         
 Turbidity Meter         
 Spec. Elec. Cond. Meter         
 ORP Meter         
 D.O. Meter         
 Interface Probe Solinst  
 PID/OVA MiniRAE 2000  
 Pump Geotech  
 Filter Apparatus Geotech 0.45 micron

Serial Number 37995  
 Serial Number         
 Serial Number         
 Serial Number         
 Serial Number         
 Serial Number 27582  
 Serial Number 00320  
 Serial Number A01006563

Number of Bottles 10Field Notebook Page 122Sample Method Low-flow grabDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3-22-04

Well Name <u>WI-14</u>	Screen Interval <u>4.1 - 14.7</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTD 71-Site 1, Q1/04</u>	Static Water Level (from TOC) / Time <u>5.05 - 0847</u> <u>5.05 - 0848</u> <u>5.05 - 0849</u>		
Project No. <u>1990-071E</u>	Average Water Level (from TOC) <u>5.05</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Off</u>	
Sample Date <u>3-30-04</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>Off</u>	
Sampling Personnel <u>B. Dale</u> <u>M. Ramos</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
	Well Depth MEAS <u>17.60</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>71-S1-022</u>	Depth of Bottom of Tubing <u>9.10</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.10</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1000	0.3	4.4	6.48	1	18.21	21808	0.0	0.3			5.12	
1003	0.3	6.0	6.52	-2	18.10	25186	0.0	0.5			5.20	
1006	0.3	4.6	6.56	-12	18.01	26450	0.0	0.8			5.31	
1009	0.3	4.1	6.53	-9	17.96	26447	0.0	1.0			5.20	
1012	0.3	4.0	6.48	-8	17.99	32076	0.0	1.2			5.13	
1015	0.3	3.9	6.49	-7	18.04	31594	0.0	1.5			5.17	
1018	0.3	3.8	6.49	-8	18.01	31628	0.0	1.7			5.17	
1020	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3 x VOCs	2 x Pesticide	2 x PCBs	1 x T. Metals	1 x D. Metals	1 x TOC/Ni-NA		
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## SAMPLE RATE

0.1 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOCs effluenced - D. Metals were field filtered

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>37995</u>	Number of Bottles <u>10</u>
Temperature Meter <u>      </u>	Serial Number <u>      </u>	
Turbidity Meter <u>      </u>	Serial Number <u>      </u>	
Spec. Elec. Cond. Meter <u>      </u>	Serial Number <u>      </u>	Field Notebook <u>Page 125</u>
ORP Meter <u>      </u>	Serial Number <u>      </u>	Sample Method <u>Low-flow grab</u>
D.O. Meter <u>      </u>	Serial Number <u>      </u>	
Interface Probe <u>Solinist</u>	Serial Number <u>27582</u>	
PID/OVA <u>MiniRAE 2000</u>	Serial Number <u>00320</u>	
Pump <u>Geotech</u>	Serial Number <u>A01006563</u>	
Filter Apparatus <u>Geotech 0.45 micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3-22-04

Well Name <u>W1-15</u>	Screen Interval <u>4.4-14.4</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTD 71-Site 1, Q1/04</u>	Static Water Level (from TOC) / Time <u>5.15 - 0825</u> <u>5.16 - 0826</u> <u>5.16 - 0827</u>		
Project No. <u>1990-071E</u>	Average Water Level (from TOC) <u>5.16</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>	
Sample Date <u>3-29-04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0 ppm</u>	
Sampling Personnel <u>B. Dale</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. Ramos</u>	Well Depth MEAS <u>17.43</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>71-S1-018</u>	Depth of Bottom of Tubing <u>9.4</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.19</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1106	0.3	4.4	6.60	-92	25.91	18733	0.0	0.3			5.20	
1109	0.3	3.9	6.75	-58	25.56	18709	0.0	0.6			5.19	
1112	0.3	3.4	6.80	-28	25.46	18409	0.0	0.9			5.20	
1115	0.3	3.1	6.78	-47	25.60	18607	0.0	1.2			5.20	
1118	0.3	2.9	6.78	-45	25.55	18751	0.0	1.5			5.21	
1121	0.3	2.9	6.80	-48	25.54	18744	0.0	1.8			5.20	
1124	Well	Stable										
1125	Collect	Sample										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3 x VOCs	2 x Pesticide	2 x PCBs	1 x T. Metals	1 x D. Metals	1 x TOC/N1-NA		
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## SAMPLE RATE

0.1 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC sample effervesced. D. Metals were field filtered. Run MS/MSD

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>37995</u>	Number of Bottles <u>30</u>
Temperature Meter <u>          </u>	Serial Number <u>          </u>	
Turbidity Meter <u>          </u>	Serial Number <u>          </u>	
Spec. Elec. Cond. Meter <u>          </u>	Serial Number <u>          </u>	Field Notebook <u>Page 120</u>
ORP Meter <u>          </u>	Serial Number <u>          </u>	Sample Method <u>low-flow grab</u>
D.O. Meter <u>          </u>	Serial Number <u>          </u>	
Interface Probe <u>Solinst</u>	Serial Number <u>27582</u>	
PID/OVA <u>MiniRAE 2000</u>	Serial Number <u>00320</u>	
Pump <u>Geotech</u>	Serial Number <u>A01006563</u>	
Filter Apparatus <u>Geotech 0.45 micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No





TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 3-22-04Well Name W1-16Project CTD 71-SITE 1, Q1/04Project No. 1990-071EWell Location Site 1Sample Date 3-31-04Sampling Personnel B. OgleM. RamosSample ID 71-S1-029

Duplicate ID \_\_\_\_\_

Screen Interval 5.4-15.4

Station Elevation \_\_\_\_\_ GND \_\_\_\_\_ TOC \_\_\_\_\_

Static Water Level (from TOC) / Time 6.37-0924 6.36-0925 6.38-0926Average Water Level (from TOC) 6.37Reference Point TOC

Reference Elevation \_\_\_\_\_

Static Elevation \_\_\_\_\_

Well Depth MEAS 18.20 RPTD \_\_\_\_\_Depth of Bottom of Tubing 10.4Depth to Water (w/ Tubing in Well) 6.55Immiscible Phases Present ☐ Yes ☒ NoPID Readings (background) 0 ppmPID Reading (TOC) 0 ppm

Notes \_\_\_\_\_

Feet of Water \_\_\_\_\_

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1052	0.3	8.5	6.32	-77	20.13	57544	0.0	0.2			6.55	
1055	0.3	5.0	6.33	-90	20.42	57931	0.0	0.5			6.56	
1058	0.3	4.1	6.37	-87	20.56	59252	0.0	0.7			6.56	
1101	0.3	3.9	6.36	-83	20.90	59499	0.0	1.0			6.57	
1104	0.3	3.9	6.37	-87	20.94	59560	0.0	1.3			6.56	
1107	0.3	3.8	6.37	-84	21.00	59560	0.0	1.5			6.55	
1110	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3x VOCs	2x Pesticide	2x PCBs	1x T. Metals	1x A. Metals	1x TOC/Ni-NA		
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## SAMPLE RATE

0.1 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOCs effervesced. A. Metals were field filtered

## FIELD EQUIPMENT

pH Meter Hydrolab

Temperature Meter \_\_\_\_\_

Turbidity Meter \_\_\_\_\_

Spec. Elec. Cond. Meter \_\_\_\_\_

ORP Meter \_\_\_\_\_

D.O. Meter \_\_\_\_\_

Interface Probe SolinstPID/OVA MiniRAE 2000Pump GeotechFilter Apparatus Geotech 0.45 micronSerial Number 37995

Serial Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Serial Number 27582Serial Number 00320Serial Number A01006563

Serial Number \_\_\_\_\_

Number of Bottles 10Field Notebook Page 129Sample Method low-flow grabDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3-22-04

Well Name <u>W1-19</u>	Screen Interval <u>14-19</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTD 71-Site 1, Q1/04</u>	Static Water Level (from TOC) / Time <u>5.62-0844</u> <u>5.63-0845</u> <u>5.63-0846</u>	
Project No. <u>1990-071E</u>	Average Water Level (from TOC) <u>5.63</u>	
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>
Sample Date <u>3-30-04</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0 ppm</u>
Sampling Personnel <u>B. Ogle</u> <u>M. Ramos</u>	Static Elevation <u></u>	Notes <u></u>
	Well Depth MEAS <u>21.31</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>71-S1-019</u>	Depth of Bottom of Tubing <u>16.5</u>	
Duplicate ID <u>71-S1-020</u>	Depth to Water (w/ Tubing in Well) <u>4.78</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0833	0.3	14.5	6.58	99	18.14	20287	0.0	0.2			4.79	
0836	0.3	9.0	6.47	58	18.65	20639	0.0	0.5			4.78	
0839	0.3	6.9	6.46	55	19.06	18451	0.0	0.8			4.78	
0842	0.3	6.0	6.46	55	19.16	18636	0.0	1.0			4.79	
0845	0.3	5.8	6.46	54	19.11	18306	0.0	1.2			4.80	
0848	0.3	5.6	6.46	54	19.01	17800	0.0	1.5			4.80	
0851	0.3	4.7	6.47	53	18.81	17529	0.0	1.75			4.80	
0854	0.3	4.7	6.46	52	18.86	17066	0.0	2.0			4.79	
0857	0.3	4.7	6.46	52	18.95	17600	0.0	2.2			4.80	
0900	Collect	Sample										
0920	Collect	FD										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3x VOCs	2x Pesticide	2x PCBs	1x T. Metals	1x D. Metals	1x TOC/NI-NA		
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## SAMPLE RATE

0.1 L/M	0.3 L/M	0.3 L/M	0.3 L/M	0.3 L/M	0.3 L/M		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOCs effluenced. D. Metals were field filtered. Field duplicate

## FIELD EQUIPMENT

pH Meter Hydrolab  
 Temperature Meter   
 Turbidity Meter   
 Spec. Elec. Cond. Meter   
 ORP Meter   
 D.O. Meter   
 Interface Probe Solinst  
 PID/OVA MiniRAE 2000  
 Pump Geotech  
 Filter Apparatus Geotech 0.45 Micron

Serial Number 37995  
 Serial Number   
 Serial Number   
 Serial Number   
 Serial Number   
 Serial Number 27582  
 Serial Number 00320  
 Serial Number A01006563

Number of Bottles 20Field Notebook Page 124Sample Method Low-flow grabDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3-22-04

Well Name <u>W1-22</u>	Screen Interval <u>2.5-7.0</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTD 71-Site 1, Q1/04</u>	Static Water Level (from TOC) / Time <u>3.45-0904</u> <u>3.46-0905</u> <u>3.45-0906</u>	
Project No. <u>1990-071E</u>	Average Water Level (from TOC) <u>3.45</u>	
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>
Sample Date <u>3-29-04</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0 ppm</u>
Sampling Personnel <u>B. Ogale</u> <u>McKamos</u>	Static Elevation <u></u>	Notes <u></u>
	Well Depth MEAS <u>6.75</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>71-S1-D24</u>	Depth of Bottom of Tubing <u>4.8</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>3.45</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1445	0.3	13.2	6.65	80	23.39	16677	0.0	0.3			3.45	
1448	0.3	5.8	6.70	80	23.46	19423	0.0	0.5			3.45	
1451	0.3	4.5	6.74	80	23.47	22095	0.0	0.8			3.45	
1454	0.3	3.7	6.78	75	23.40	21762	0.0	1.1			3.45	
1457	0.3	2.9	6.87	75	22.81	18050	0.0	1.4			3.45	
1500	0.3	2.9	6.92	75	23.65	18722	0.0	1.7			3.45	
1503	0.3	2.8	6.94	74	23.60	17943	0.0	2.0			3.45	
1506	0.3	2.7	6.94	74	23.71	17301	0.0	2.2			3.44	
1509	0.3	2.7	6.96	72	23.79	17422	0.0	2.4			3.45	
1515	Collect Samples											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3 x VOCs	2 x Pesticide	2 x PCBs	1 x T. Metals	1 x D. Metals	1 x TOC/Ni-NA		
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## SAMPLE RATE

0.1 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOCs slightly effervesced. D. Metals were field filtered

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>37995</u>	Number of Bottles <u>10</u>
Temperature Meter <u></u>	Serial Number <u></u>	
Turbidity Meter <u></u>	Serial Number <u></u>	
Spec. Elec. Cond. Meter <u></u>	Serial Number <u></u>	Field Notebook <u>Page 123</u>
ORP Meter <u></u>	Serial Number <u></u>	Sample Method <u>Low-flow grab</u>
D.O. Meter <u></u>	Serial Number <u></u>	
Interface Probe <u>Solinst</u>	Serial Number <u>27582</u>	
PID/OVA <u>MiniRAE 2000</u>	Serial Number <u>00320</u>	
Pump <u>Geotech</u>	Serial Number <u>AD1006563</u>	
Filter Apparatus <u>Geotech 0.45 micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3-22-04

Well Name <u>W1-23</u>	Screen Interval <u>N/A</u>	Station Elevation <u>GND</u> TOC <u>4.64-0855</u> 4.64-0856 4.63-0857	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTD 71-Site 1, Q1/04</u>	Static Water Level (from TOC) / Time <u>4.64</u>	Average Water Level (from TOC) <u>4.64</u>	
Project No. <u>1990-071E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u> ppm	
Well Location <u>Site 1</u>	Reference Elevation	PID Reading (TOC) <u>0</u> ppm	
Sample Date <u>3-29-04</u>	Static Elevation	Notes	
Sampling Personnel <u>B. Dale</u> <u>M. Ramos</u>	Well Depth MEAS <u>6.01</u> RPTD	Feet of Water	
Sample ID <u>71-S1-021</u>	Depth of Bottom of Tubing <u>5.70</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>4.60</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1248	0.2	19.1	6.67	150	25.61	35356	0.0	0.2			4.64	
1251	0.15	6.9	6.70	145	25.34	34060	0.0	0.35			4.72	
1254	0.15	4.7	6.75	144	25.19	33682	0.0	0.5			4.77	
1257	0.1	3.5	6.79	145	25.13	24477	0.0	0.6			4.82	
1300	0.1	3.2	6.80	147	25.02	21769	0.0	0.7			4.91	
1303	0.1	2.9	6.86	152	24.99	21233	0.0	0.8			5.01	
1306	0.1	2.8	6.89	155	24.85	21504	0.0	0.9			5.12	
1309	0.1	2.7	6.89	152	24.81	21179	0.0	1.0			5.20	
1312	0.1	2.7	6.91	152	24.80	21099	0.0	1.1			5.34	
1315	Collect	Sample										

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

3 x VOCs	2 x Pesticide	2 x PCBs	1 x T. Metals	1 x D. Metals	1 x TOC/Ni-NA		
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## SAMPLE RATE

0.1 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min		
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good - Not much water in trench  
 Remarks: Very Muddy - Ran dry while samples - NO SAMPLES RETAINED

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>37995</u>	Number of Bottles <u>0</u>
Temperature Meter	Serial Number	
Turbidity Meter	Serial Number	
Spec. Elec. Cond. Meter	Serial Number	Field Notebook <u>Pg. 121</u>
ORP Meter	Serial Number	Sample Method <u>LOW-FLOW grab</u>
D.O. Meter	Serial Number	
Interface Probe <u>Solinst</u>	Serial Number <u>27582</u>	
PID/OVA <u>MiniRAE 2000</u>	Serial Number <u>00320</u>	
Pump <u>Geotech</u>	Serial Number <u>AD1006563</u>	
Filter Apparatus <u>Geotech 0.45 micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3-22-04Well Name WI-24Project CTD 71-site 1 - Q1/04Project No. 1990.071EWell Location Site 1Sample Date 3-31-04

Sampling Personnel

B. OgileM. RamosSample ID 71-S1-028Duplicate ID N/AScreen Interval 6-16Station Elevation GND TOCImmiscible Phases Present ☐ Yes ☒ NoStatic Water Level (from TOC) / Time 6.64-0919 6.65-0920 6.65-0921Average Water Level (from TOC) 6.65Reference Point TOC PID Readings (background) 0ppmReference Elevation PID Reading (TOC) 0ppm

Static Elevation Notes

Well Depth MEAS 20.22 RPTD Feet of WaterDepth of Bottom of Tubing 11Depth to Water (w/ Tubing in Well) 6.72

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1002	0.3	24.7	6.41	-44	18.92	51946	0.0	0.2			6.72	
1005	0.3	10.9	6.45	-47	19.23	50888	0.0	0.5			6.71	
1008	0.3	6.5	6.45	-49	19.75	47273	0.0	0.7			6.71	
1011	0.3	5.2	6.42	-43	20.19	45472	0.0	1.0			6.73	
1014	0.3	5.0	6.41	-41	20.22	44899	0.0	1.3			6.72	
1017	0.3	4.9	6.40	-40	20.21	45306	0.0	1.6			6.73	
1020	Collect	Samples										

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3x VOCs	2x Pesticide	2x PCBs	1 x T. Metals	1 x D. Metals	1 x TOC / Ni-Na		
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## SAMPLE RATE

0.1 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min	0.3 L/min		
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## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOCs effervesced - D. Metals were field filtered

## FIELD EQUIPMENT

pH Meter Hydrolab

Temperature Meter

Turbidity Meter

Spec. Elec. Cond. Meter

ORP Meter

D.O. Meter

Interface Probe SolinstPID/OVA MiniRAE 200Pump GeotechFilter Apparatus Geotech 0.45 micronSerial Number 37995

Serial Number

Serial Number

Serial Number

Serial Number

Serial Number 27582Serial Number 00320Serial Number A01006563

Serial Number

Number of Bottles 10Field Notebook Page 128Sample Method LOW-FLOWDischarge Water Containerized ☒ Yes ☐ No

**MAY 2004**



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 5/24/04

Well Name <u>W1-1</u>	Screen Interval <u>15-25</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, 2nd Quarter</u>	Static Water Level (from TOC) / Time <u>3.22/1108</u> <u>3.22/1109</u> <u>3.22/1110</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>3.22</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>	
Sample Date <u>5/24/04</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>Oppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>25.90</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-001</u>	Depth of Bottom of Tubing <u>20</u>		
Duplicate ID <u>86-S1-002</u>	Depth to Water (w/ Tubing in Well) <u>3.21</u>		

PURGING												
Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
12:45	.4	2.75	6.39	171	25.26	44701	21.1	.2			3.26	
12:48	.4	0.78	6.41	184	25.02	44582	19.6	.4			3.28	
12:51	.4	0.57	6.45	185	24.73	43651	13.7	.6			3.32	
12:54	.4	0.50	6.45	171	24.95	43039	11.4	.8			3.35	
12:57	.4	0.47	6.47	159	25.03	43057	12.8	1			3.35	
13:00	.4	0.42	6.48	116	24.88	43087	12.6	1.2			3.36	
13:05	Collect	Sample										
13:20	Collect	Field Duplicate										

Notes:  
1. Purge rate = 0.2 - 0.5 L/minute  
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

6x VOCs	4x SVOCs	4x Pest	4x PCBs	2x D.M.H.S	2x D. Merc		
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## SAMPLE RATE

1 L/min	.4	.4	.4	.4	.4		
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Notes:  
1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute  
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:       

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>
Pump <u>GEO-PUMP</u>	Serial Number <u>#01689</u>
Filter Apparatus <u>GEO-45 MICRON</u>	

Number of Bottles 22

Field Notebook Pg. 3

Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 5/24/04

Well Name <u>W1-5</u>	Screen Interval <u>14.5-19.5</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, 2nd Quarter</u>	Static Water Level (from TOC) / Time <u>5.29/1213</u> <u>5.29/1214</u> <u>5.29/1215</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.29</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>5/24/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>91.30</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-010</u>	Depth of Bottom of Tubing <u>15.5</u>		
Duplicate ID <u>N/A -COLLECT MS/MSD</u>	Depth to Water (w/ Tubing in Well) <u>5.33</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0843	.4	0.95	6.91	-2	22.23	54907	2.3	.2			5.36	
0846	.4	0.56	6.90	-19	22.56	54189	2.1	.4			5.39	
0849	.4	0.52	6.89	-26	22.86	53593	1.9	.6			5.44	
0852	.4	0.46	6.88	-28	23.01	53332	1.7	.8			5.44	
0855	.4	0.44	6.88	-30	23.21	53171	1.9	1			5.45	
0858	.4	0.40	6.86	-29	23.24	53240	1.4	1.2			5.46	
0901	.4	0.38	6.85	-32	23.25	53359	1.2	1.4			5.48	
0910	Collect Sample											

Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

3x VOC's	2x SVOC's	2x Pest.	2x PCB's	1x D.M.H.S	1x D. Mercury		
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## SAMPLE RATE

.1 L/min	.4	.4	.4	.4	.4		
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Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC samples effervescing

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>
Pump <u>GEO-PUMP</u>	Serial Number <u>#01689</u>
Filter Apparatus <u>GEO-45 MICRON</u>	

Number of Bottles 33Field Notebook Pg 11Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



Page 1 of 1

Date 5/24/04

[illegible]

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Vol Samples effervesced

## FIELD EQUIPMENT

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 5/24/04

Well Name <u>W1-12R</u>	Screen Interval <u>15-25</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, 2nd Quarter</u>	Static Water Level (from TOC) / Time <u>2.40/1203</u> <u>2.40/1203</u> <u>2.40/1203</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>2.40</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>	
Sample Date <u>5/25/04</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>Oppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>25.66</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-008</u>	Depth of Bottom of Tubing <u>20</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>2.72</u>		

PURGING												
Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1317	.4	1.20	6.66	197	22.39	51346	95.4	.2			2.74	
1320	.4	.94	6.66	197	22.15	51727	99.5	.4			2.74	
1323	.4	0.65	6.66	180	21.73	50670	70.5	.6			2.74	
1326	.4	0.61	6.67	178	21.58	50701	56.5	.8			2.74	
1329	.4	0.56	6.67	179	21.46	50048	48.5	.1			2.74	
1332	.4	0.55	6.66	180	21.37	53308	47.4	1.2			2.74	
1335	.4	0.56	6.68	182	21.26	52604	36.3	1.4			2.74	
1340	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

3x VOCs	2x SVOCs	2x Pest.	2x PCB's	1x D. MTLs	1x D. Merc.		
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## SAMPLE RATE

.1 L/min	.4	.4	.4	.4	.4		
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC Samples effervesced

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number #38520  
 Serial Number #38520  
 Serial Number #38520  
 Serial Number #38520  
 Serial Number #38520  
 Serial Number #38520  
 Serial Number #25582  
 Serial Number #00320  
 Serial Number #01689

Number of Bottles 11Field Notebook Pg. 8Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 5/24/04Well Name W1-14Project CTO 86-Site 1, 2nd QuarterProject No. 1990.086EWell Location Moffett-Site 1Sample Date 5/25/04Sampling Personnel D. HARRISONM. RAMOSSample ID 86-S1-006Duplicate ID 86-S1-007Screen Interval 4.1-14.1Station Elevation GND TOCStatic Water Level (from TOC) / Time 5.46/1145 5.46/1146 5.46/1147Average Water Level (from TOC) 5.46Reference Point TOC

Reference Elevation

Static Elevation

Well Depth MEAS 17.67 RPTDDepth of Bottom of Tubing 9.1Depth to Water (w/ Tubing in Well) 5.48

Immiscible Phases Present

☐ Yes ☒ No

PID Readings (background)

PID Reading (TOC)

Notes

Feet of Water

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1057	.1	1.13	6.71	-22	23.96	50926	4.9	.2			5.55	
1100	.4	1.01	6.76	-24	23.65	50682	4.4	.4			5.59	
1103	.4	0.91	6.76	-24	23.55	51507	6.1	.6			5.62	
1106	.4	0.41	6.74	-28	23.55	52397	6.6	.8			5.66	
1109	.4	0.41	6.70	-7	23.58	52771	5.8	1			5.48	
1112	.4	0.39	6.71	-0	23.56	52978	6.4	1.2			5.71	
1115	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

6x VOC's	4x SVOC's	4x Pest.	4x PCB's	2x D.MTHS	2x D. Merc.		
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## SAMPLE RATE

.1 L/min	.4	.4	.4	.4	.4		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC samples effervesced

## FIELD EQUIPMENT

pH Meter HYDROLABSerial Number #38520Number of Bottles 22Temperature Meter HYDROLABSerial Number #38520Turbidity Meter HYDROLABSerial Number #38520Spec. Elec. Cond. Meter HYDROLABSerial Number #38520ORP Meter HYDROLABSerial Number #38520D.O. Meter HYDROLABSerial Number #38520Interface Probe SOLINSTSerial Number #25582PID/OVA MINI-RAESerial Number #00320Pump GEO-PUMPSerial Number #01689Filter Apparatus GEO-45 MICRONDischarge Water Containerized ☒ Yes ☐ NoField Notebook Pg. 7Sample Method Low Flow



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 5/24/04

Well Name <u>W1-15</u>	Screen Interval <u>4.4-14.4</u>	Station Elevation <u>GND</u> TOC <u>          </u> Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, 2nd Quarter</u>	Static Water Level (from TOC) / Time <u>4.55/1114</u> <u>4.55/1115</u> <u>4.55/1116</u>	Average Water Level (from TOC) <u>4.55</u>
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>
Well Location <u>Moffett- Site 1</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Oppm</u>
Sample Date <u>5/24/04</u>	Static Elevation <u>          </u>	Notes <u>          </u>
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>17.44</u> RPTD <u>          </u>	Feet of Water <u>          </u>
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>9.4</u>	
Sample ID <u>86-S1-003</u>	Depth to Water (w/ Tubing in Well) <u>4.55</u>	
Duplicate ID <u>N/A</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1350	.45	1.49	6.49	-56	27.01	33074	6.5	.2			4.56	
1353	.45	0.99	6.55	-35	26.02	33690	3.7	.5			4.59	
1356	.45	2.97	6.72	-68	25.70	33355	4.9	.7			4.60	
1359	.45	0.94	6.72	-83	25.29	33308	4.7	.8			4.64	
1402	.45	0.68	6.62	-90	25.03	38302	5.1	1			4.71	
1405	.45	0.62	6.62	-110	25.00	44971	3.1	1.3			4.72	
1412	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

3x VOCs	2x Pest	2x PCBs	2x SVOCs	1x D.Metals	1x D.Merc.	
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## SAMPLE RATE

.1 L/min	.45 L/min	.45 L/min	.45 L/min	.45 L/min	.45 L/min	
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC samples effervesced

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>
Pump <u>GEO-PUMP</u>	Serial Number <u>#01689</u>
Filter Apparatus <u>GEO-45 MICRON</u>	

Number of Bottles 11Field Notebook pg 374 475Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 5/24/04

Well Name <u>W1-16</u>	Screen Interval <u>5.4-15.4</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, 2nd Quarter</u>	Static Water Level (from TOC) / Time <u>9.45/1228</u> <u>9.45/1229</u> <u>9.45/1230</u>	Average Water Level (from TOC) <u>9.45</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Well Location <u>Moffett- Site 1</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sample Date <u>5/26/04</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>18.21</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>10.4</u>		
Sample ID <u>86-S1-013</u>	Depth to Water (w/ Tubing in Well) <u>9.43</u>		
Duplicate ID <u>N/A</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1359	.4	1.03	6.64	62	24.22	57601	6.5	.2			9.46	
1402	.4	0.49	6.59	38	23.61	58871	2.8	.4			9.51	
1405	.4	0.43	6.60	47	23.24	60552	2.0	.6			9.53	
1408	.4	0.44	6.60	46	23.05	61021	2.1	.8			9.54	
1411	.4	0.37	6.61	62	22.80	61465	1.9	1			9.56	
1415	Collect Sample											

### Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

3x VOC'S	2x SVOC'S	2x Pest.	2x PCB'S	1x D. METALS	1x D. Mercury		
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### SAMPLE RATE

.1 L/min	.4	.4	.4	.4	.4		
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### Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOL samples effervesced

### FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	Number of Bottles <u>11</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	Field Notebook <u>Pg 14</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#01689</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 5/24/04

Well Name <u>W1-19</u>	Screen Interval <u>14-19</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, 2nd Quarter</u>	Static Water Level (from TOC) / Time <u>5.02/1138</u> <u>5.03/1139</u> <u>5.03/1140</u>	Average Water Level (from TOC) <u>5.03</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>	
Well Location <u>Moffett- Site 1</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Oppm</u>	
Sample Date <u>5/25/04</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>21.30</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>16.5</u>		
Sample ID <u>86-S1-004</u>	Depth to Water (w/ Tubing in Well) <u>5.05</u>		
Duplicate ID <u>N/A</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
10:06	.4	5.85	6.64	88	21.26	52303	6.6	.2			5.11	
10:09	.4	0.78	6.67	96	21.36	51792	5.9	.4			5.13	
10:12	.4	0.57	6.67	96	21.47	52008	4.2	.6			5.19	
10:15	.4	0.52	6.68	99	21.60	52654	4.9	.8			5.22	
10:18	.4	0.48	6.68	99	21.72	52114	3.8	1			5.24	
10:21	.4	0.44	6.69	102	21.88	52161	3.7	1.2			5.25	
10:25	Collect Sample											

Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

3x VOCs	2x SVOCs	2x AsT	2x PCBs	2x D.M.H.s	1x D. Mar.		
1 L/min	.4	.4	.4	.4	.4		

Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC samples effervesced

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#38520
Temperature Meter	HYDROLAB	Serial Number	#38520
Turbidity Meter	HYDROLAB	Serial Number	#38520
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#38520
ORP Meter	HYDROLAB	Serial Number	#38520
D.O. Meter	HYDROLAB	Serial Number	#38520
Interface Probe	SOLINST	Serial Number	#25582
PID/OVA	MINI-RAE	Serial Number	#00320
Pump	GEO-PUMP	Serial Number	#01689
Filter Apparatus	GEO-45 MICRON		

Number of Bottles 11Field Notebook Pg 4Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 5/24/04

Well Name <u>W1-22</u>	Screen Interval <u>N/A</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, 2nd Quarter</u>	Static Water Level (from TOC) / Time <u>3.52/1206</u> <u>3.52/1207</u> <u>3.52/1208</u>	Average Water Level (from TOC) <u>3.52</u>
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>
Well Location <u>Moffett-Site 1</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0ppm</u>
Sample Date <u>5/26/04</u>	Static Elevation <u></u>	Notes <u></u>
Sampling Personnel <u>D. HARRISON</u>	Well Depth <u>MEAS 66</u> RPTD <u></u>	Feet of Water <u></u>
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u></u>	
Sample ID <u>86-S1-009</u>	Depth to Water (w/ Tubing in Well) <u>3.56</u>	
Duplicate ID <u>N/A</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0742	.4	2.27	6.10	4	16.25	31391	95.6	.2			3.58	
0745	.4	1.02	6.21	-14	16.42	30270	47.8	.4			3.60	
0748	.4	0.52	6.29	-21	16.67	28720	31.3	.6			3.64	
0751	.4	0.76	6.39	-30	16.91	26292	20.8	.8			3.68	
0754	.4	0.64	6.43	-29	16.9	29468	16.9	1			3.70	
0757	.4	0.63	6.47	-27	17.34	26658	17.37	1.2			3.74	
0800	Collect Sample											

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

3x VOC's	2x SRC's	2x Pest.	2x PCB's	1x D. Metals	1x D. Mercury		
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## SAMPLE RATE

0.1 L/min	.4	.4	.4	.4	.4	.4	
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## Notes:

1. Sample rate for VOC's analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOC's analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC's samples effervesced

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	Number of Bottles <u>11</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	Field Notebook <u>Pg. 10</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#01689</u>	
Filter Apparatus <u>GEO-.45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 5/24/04

Well Name <u>W1-23</u>	Screen Interval <u>N/A</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, 2nd Quarter</u>	Static Water Level (from TOC) / Time <u>5.35/1153</u> <u>5.35/1154</u> <u>5.35/1155</u>	
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.35</u>	
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>
Sample Date _____	Reference Elevation _____	PID Reading (TOC) <u>Oppm</u>
Sampling Personnel <u>D. HARRISON</u>	Static Elevation _____	Notes _____
<u>M. RAMOS</u>	Well Depth MEAS <u>5.92</u> RPTD _____	Feet of Water _____
Sample ID <u>86-S1-005</u>	Depth of Bottom of Tubing <u>5.80</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.35</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EN/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1245	.4	1.00	6.66	-49	24.34	62656	270	12			5.39	
1248	.4	0.98	6.70	-55	24.12	73526	6.9	14			5.46	
1251	.4	0.49	6.69	-72	23.85	77461	185.1	16			5.58	
1254	.4	0.44	6.69	-72	23.77	90103	444.2	18			5.72	
1258	.4	0.50	6.73	-69	23.69	25310	0.0	1				
Collection Trench Ran Dry												

Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

<u>N/A</u>							
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## SAMPLE RATE

<u>N/A</u>							
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Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Trench ran dry @ 1258

## FIELD EQUIPMENT

pH Meter HYDROLAB  
Temperature Meter HYDROLAB  
Turbidity Meter HYDROLAB  
Spec. Elec. Cond. Meter HYDROLAB  
ORP Meter HYDROLAB  
D.O. Meter HYDROLAB  
Interface Probe SOLINST  
PID/OVA MINI-RAE  
Pump GEO-PUMP  
Filter Apparatus GEO-45 MICRON

Serial Number #38520  
Serial Number #38520  
Serial Number #38520  
Serial Number #38520  
Serial Number #38520  
Serial Number #38520  
Serial Number #25582  
Serial Number #00320  
Serial Number #01689

Number of Bottles 0Field Notebook pg. 8Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No





TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 5/24/04

Well Name <u>W1-24</u>	Screen Interval <u>6-16</u>	Station Elevation <u>        </u> GND <u>        </u> TOC <u>        </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, 2nd Quarter</u>	Static Water Level (from TOC) / Time <u>6.95/1223</u> <u>6.95/1224</u> <u>6.95/1225</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>6.95</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>5/24/04</u>	Reference Elevation <u>        </u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>        </u>	Notes <u>        </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>20.24</u> RPTD <u>        </u>	Feet of Water <u>        </u>	
Sample ID <u>86-S1-012</u>	Depth of Bottom of Tubing <u>11</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>6.97</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1310	.4	1.05	6.75	60	25.40	248219	11.1	1.2			7.00	
1313	.4	0.70	6.71	4	24.62	49917	15.1	.4			7.04	
1316	.4	0.39	6.70	-7	24.70	49160	18.5	.4			7.05	
1319	.4	0.37	6.68	-11	24.02	48350	25.9	.8			7.08	
1322	.4	0.34	6.65	-5	23.86	48261	23.9	1			7.10	
1325	.4	0.33	6.63	4	23.59	49789	17.1	1.2			7.11	
	Collect Sample											

### Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

3x VOCs	2x SVOCs	2x Pest.	2x PCBs	1x D. MHLs	1x D. Met. (w/)		
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### SAMPLE RATE

.1 L/min	.4	.4	.4	.4	.4	.4	
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### Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC samples effervesced

### FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	Number of Bottles <u>11</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	Field Notebook <u>Pg 13</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38520</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#01689</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**NOVEMBER 2004**

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Date 11/8/04

Well Name <u>W1-1R</u>	Screen Interval <u>14.3-24.3</u>	
Project <u>CTO 86-Site 1</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>8.30/0839</u> <u>8.30/0840</u> <u>8.30/0841</u>	
Well Location <u>Moffett- Site 1</u>	Average Water Level (from TOC) <u>8.30</u>	
Sample Date <u>11/8/04</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Off</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>Off</u>
<u>M. RAMOS</u>	Static Elevation <u>      </u>	Notes <u>      </u>
	Well Depth MEAS <u>27.45</u> RPTD <u>      </u>	Feet of Water <u>      </u>
Sample ID <u>86-S1-056</u>	Depth of Bottom of Tubing <u>19.3</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>8.30</u>	

## PURGING

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

3x 2xSVOC's VOC's	2xSVOC's	2xPCBs	2xPEST	1xD.MERC.	1xD.Metals		
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## SAMPLE RATE

1 C/m	.4 C/m	.4 C/m	.4 C/m	.4 C/m	.4 C/m		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good - Needs to be painted

Remarks: VDL Samples observed

### FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-.45 MICRON

Serial Number	#R41041
Serial Number	#R41041
Serial Number	#R41041
Serial Number	#R41041
Serial Number	#R41041
Serial Number	#R41041
Serial Number	#25582
Serial Number	#00320
Serial Number	BA0041

Number of Bottles 2X1LA 3x 40mLV  
6X1LA  
1X1LP  
1X250mLP  
 Field Notebook Pg. 43  
 Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 11/8/04Well Name W1-5Project CTO 86-Site 1Project No. 1990.086EWell Location Moffett- Site 1Sample Date 11/9/04Sampling Personnel D. HARRISONM. RAMOSSample ID 86-S1-063Duplicate ID 86-S1-064Screen Interval 14.5-19.5Station Elevation GND TOC            Immiscible Phases Present ☐ Yes ☒ NoStatic Water Level (from TOC) / Time 5.82/0813 5.82/0814 5.82/0815Average Water Level (from TOC) 5.82Reference Point TOC PID Readings (background) OppmReference Elevation            PID Reading (TOC) OppmStatic Elevation            Notes           Well Depth MEAS 21.33 RPTD            Feet of Water           Depth of Bottom of Tubing 17Depth to Water (w/ Tubing in Well) 5.82

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1343	.4	0.43	6.54	183	1820	84245	1.8	.2			5.84	
1346	.4	0.28	6.53	175	1818	84224	1.0	.4			5.86	
1349	.4	0.25	6.54	170	1815	84144	0.9	.6			5.87	
1352	.4	0.22	6.54	165	1836	83695	0.7	.8			5.89	
1355	.4	0.21	6.54	162	1836	83652	0.7	1.0			5.89	
1358	.4	0.20	6.54	161	1834	83521	0.2	1.2			5.89	
1400	Collect	Sample										
1415	Collect	Field Duplicate										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3xVOCs	4xSVOC's	4xPCBs	4xPEST	2xD.MERC.	2xD.Metals		
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## SAMPLE RATE

.4 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Slight H2S odor. VOC samples effervesced. Metals + Merc. Field filtered.

## FIELD EQUIPMENT

pH Meter HYDROLABTemperature Meter HYDROLABTurbidity Meter HYDROLABSpec. Elec. Cond. Meter HYDROLABORP Meter HYDROLABD.O. Meter HYDROLABInterface Probe SOLINSTPID/OVA MINI-RAEPump GEO-PUMPFilter Apparatus GEO-45 MICRONSerial Number #R41041Serial Number #R41041Serial Number #R41041Serial Number #R41041Serial Number #R41041Serial Number #R41041Serial Number #25582Serial Number #00320Serial Number BA0041Number of Bottles 6X40mLV121LA2X1LP2X250mLPField Notebook Pgs. 49 + 50Sample Method Low Flow                              Discharge Water Containerized ☒ Yes ☐ No

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 11/8/04

Well Name <u>W1-8</u>		Screen Interval <u>13-18</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>		Static Water Level (from TOC) / Time <u>5.90/0818</u> <u>5.90/0819</u> <u>5.90/0820</u>		
Project No. <u>1990.086E</u>		Average Water Level (from TOC) <u>5.90</u>		
Well Location <u>Moffett- Site 1</u>		Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>11/10/04</u>		Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>		Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>		Well Depth MEAS <u>22.67</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-065</u>		Depth of Bottom of Tubing <u>15.5</u>		
Duplicate ID <u>86-S1-066</u>		Depth to Water (w/ Tubing in Well) <u>5.90</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
0740	.4	0.47	6.6	226	13.5	93960	1.08	.2			5.94	
0743	.4	0.31	6.6	218	13.7	93594	0.8	.4			5.96	
0746	.4	0.23	6.6	208	14.1	92821	0.5	.6			5.97	
0749	.4	0.22	6.6	201	14.4	92324	0.4	.8			5.97	
0752	.4	0.21	6.6	196	14.6	92057	0.4	1.0			5.98	
0755	Collect	Sample	#65	14.7								
0810	Collect	Field Duplicate	#66									

### Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

6xVOCs	4xSVOC's	4xPCBs	4xPEST	2xD.MERC.	2xD.Metals		
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### SAMPLE RATE

.1 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min		
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### Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: VOC samples effervesced. Metals + Merc. were field filtered

### FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Number of Bottles <u>6X40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>121LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>2X1LP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>2X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Field Notebook <u>Pgs 51 + 52</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	Sample Method <u>Low Flow</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO- 45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 11/8/04

Well Name <u>W1-12R</u>	Screen Interval <u>15-25</u>
Project <u>CTO 86-Site 1</u>	Station Elevation <u>GND</u> TOC <u>          </u> Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>3.09/0801</u> <u>3.09/0801</u> <u>3.09/0801</u>
Well Location <u>Moffett-Site 1</u>	Average Water Level (from TOC) <u>3.09</u>
Sample Date <u>11/9/04</u>	Reference Point <u>TOC</u> PID Readings (background) <u>0ppm</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation <u>          </u> PID Reading (TOC) <u>0ppm</u>
<u>M. RAMOS</u>	Static Elevation <u>          </u> Notes <u>          </u>
	Well Depth MEAS <u>25.66</u> RPTD <u>          </u> Feet of Water <u>          </u>
Sample ID <u>86-S1-061</u>	Depth of Bottom of Tubing <u>20</u>
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>3.09</u>

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0900	.4	0.75	6.55	360	15.89	92495	7.5	.2			3.12	
0903	.4	0.43	6.57	389	16.23	92728	5.7	.4			3.13	
0906	.4	0.36	6.57	344	16.47	92152	4.0	.6			3.14	
0909	.4	0.26	6.58	339	16.76	94602	3.3	.8			3.14	
0912	.4	0.20	6.58	337	16.79	92170	2.4	1.0			3.14	
0915	.4	0.20	6.58	333	16.88	94767	1.9	1.2			3.14	
0918	.4	0.19	6.58	330	17.01	92662	1.3	1.4			3.14	
0920	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3XVOCs	2xSVOC's	2xPCBs	2xPEST	1xD.MERC.	1xD.Metals		
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## SAMPLE RATE

.1 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Black / Turbid / Strong H<sub>2</sub>S odor. VOC samples effervescence. Metals + Merc. were field filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Number of Bottles <u>3x40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>6X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X1LP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Field Notebook <u>Pg. 47</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-.45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 11/8/04

Well Name <u>W1-14</u>	Screen Interval <u>4.1-14.1</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>5.86/0748</u> <u>5.86/0749</u> <u>5.86/0750</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.86</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>11/9/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>17.67</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-060</u>	Depth of Bottom of Tubing <u>9.1</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.86</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0748	.4	0.95	6.66	260	14.04	63852	13.1	.2			5.88	
0748	.4	0.55	6.66	239	14.16	65569	7.5	.4			5.91	
0751	.4	0.39	6.65	224	14.41	63174	6.5	.6			5.92	
0754	.4	0.32	6.65	233	14.62	66290	4.2	.7			5.94	
0757	.4	0.29	6.63	247	14.81	64146	3.6	.9			5.96	
0800	.4	0.29	6.62	246	15.10	64645	3.1	1.1				
0805	Collect	Sample										

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2x VOCs	2x SVOC's	2x PCBs	2x PEST	1x D.MERC.	1x D.Metals		
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## SAMPLE RATE

.1 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min		
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good.Remarks: VOC samples effervesced. Metals + Merc. were field filtered.

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Number of Bottles <u>2x1LA 3x40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>6X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X1LP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Field Notebook <u>Pg. 46</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	Sample Method <u>Low Flow</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 11/8/04

Well Name <u>W1-15</u>	Screen Interval <u>4.4-14.4</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>6.38/0724</u> <u>6.38/0725</u> <u>6.38/0726</u>	Average Water Level (from TOC) <u>6.38</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Well Location <u>Moffett-Site 1</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sample Date <u>11/8/04</u>	Static Elevation <u>17.74</u>	Notes <u>          </u>	
Sampling Personnel <u>D. HARRISON</u> <u>M. RAMOS</u>	Well Depth MEAS <u>6.38</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-057</u>	Depth of Bottom of Tubing <u>9.4</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>6.38</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0957	.4	0.55	6.54	230	16.73	98960	3.2	.2			6.40	
1000	.4	0.42	6.54	227	16.57	97424	1.9	.4			6.41	
1003	.4	0.32	6.55	225	16.72	96996	0.2	.4			6.42	
1006	.4	0.26	6.55	222	16.87	97116	0.2	.8			6.43	
1009	.4	0.23	6.55	219	17.05	96029	0.4	1.0			6.43	
1015	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2XSVOCS	2xSVOC's	2xPCBs	2xPEST	1xD.MERC.	1xD.Metals		
<u>.1 L/min</u>	<u>.4 L/min</u>	<u>.4 L/min</u>	<u>.4 L/min</u>	<u>.4 L/min</u>	<u>.4 L/min</u>		

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC Samples effervesced. Metals + Merc. were field filtered.

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>6X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X1LP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Field Notebook <u>Pgs. 43 + 44</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No





TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 11/8/04

Well Name <u>W1-16</u>	Screen Interval <u>5.4-15.4</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>7.75/0833</u> <u>7.75/0834</u> <u>7.75/0835</u>	Average Water Level (from TOC) <u>7.75</u>
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>
Well Location <u>Moffett- Site 1</u>	Reference Elevation _____	PID Reading (TOC) <u>Oppm</u>
Sample Date <u>11/10/04</u>	Static Elevation _____	Notes _____
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>18.24</u> RPTD _____	Feet of Water _____
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>10.4</u>	
Sample ID <u>86-S1-068</u>	Depth to Water (w/ Tubing in Well) <u>7.75</u>	
Duplicate ID <u>RUN MS/MSD</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0948	.4	0.92	6.38	264	16.35	98281	1.9	.2			7.78	
0951	.4	0.51	6.39	248	16.13	98946	1.2	.4			7.81	
0954	.4	0.35	6.39	227	16.55	97593	0.8	.6			7.82	
0957	.4	0.25	6.39	212	16.80	98474	0.6	.8			7.84	
1000	.4	0.24	6.40	205	16.93	98464	0.2	1.0			7.84	
1003	.4	0.23	6.40	202	16.96	97872	0.3	1.2			7.85	
1005	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

9xVOCs	6xSVOC's	6xPCBs	6xPEST	3xD.MERC.	3xD.Metals		
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## SAMPLE RATE

.1 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min		
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Slight H2S odor

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Number of Bottles <u>9X40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>18x1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>3X1LP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>3X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Field Notebook <u>Pg. 53</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-.45 MICRON</u>		

Discharge Water Containerized ☒ Yes ☐ No



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LOW-FLOW GROUNDWATER  
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Well Name <u>W1-19</u>	Screen Interval <u>14-19</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>5.40/0730</u> <u>5.40/0730</u> <u>5.40/0730</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.40</u>		
Well Location <u>Moffett-Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>11/8/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>21.20</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-058</u>	Depth of Bottom of Tubing <u>16.5</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.40</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1052	.4	0.46	6.63	308	16.51	93998	1.0	.2			5.43	
1055	.4	0.28	6.63	294	16.72	92962	3.3	.4			5.46	
1058	.4	0.23	6.64	288	16.94	92570	2.2	.6			5.47	
1101	.4	0.19	6.64	283	17.08	91940	1.3	.8			5.48	
1103	.4	0.18	6.64	281	17.16	91937	0.6	1.0			5.50	
1106	.4	0.18	6.64	280	17.21	91916	1.1	1.2			5.50	
1110	Collect Sample											

Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

3x 2xVOCs	2xSVOC's	2xPCBs	2xPEST	1xD.MERC.	1xD.Metals		
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## SAMPLE RATE

.1 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min		
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Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: VOC samples after vesed. Metals + Merc. were field filtered.

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>6X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X1LP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Field Notebook <u>Pgs. 44 + 45</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Well Name <u>W1-22</u>	Screen Interval <u>N/A</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>3.75/0824</u> <u>3.75/0805</u> <u>3.75/0804</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>3.75</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppn</u>	
Sample Date <u>11/9/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Oppn</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>0.68</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-062</u>	Depth of Bottom of Tubing <u>5.00</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>3.75</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0955	.4	0.52	6.46	231	18.07	60233	1.40	.2			3.78	
0958	.4	0.42	6.48	226	18.73	59670	25.6	.4			3.83	
1001	.4	0.31	6.49	221	19.52	57927	11.9	.6			3.85	
1004	.4	0.29	6.50	219	19.77	57383	16.4	.8			3.89	
1007	.4	0.27	6.50	217	20.25	57053	7.6	1.0			3.91	
1010	.4	0.23	6.51	215	20.50	57042	6.9	1.2			3.93	
1015	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3XVOCs	2xSVOC's	2xPCBs	2xPEST	1xD.MERC.	1xD.Metals		
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## SAMPLE RATE

.1 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Black/turbid water - H2S odor. VOC samples effervescence. Metals + Merc were field filtered.

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Number of Bottles <u>3x40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>6X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X1LP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Field Notebook <u>Pg. 48</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 11/8/04

Well Name <u>W1-23</u>	Screen Interval <u>n/a</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>5.35/0754</u> <u>5.35/0755</u> <u>5.35/0756</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.35</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Open</u>	
Sample Date <u>N/A</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Open</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>6.0</u> RPTD <u>6.0</u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-059</u>	Depth of Bottom of Tubing <u>5.35</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.8</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1240	.3	2.13	7.07	382	19.69	100.000	101.8	.1			5.42	
1243	.3	1.97	7.09	386	19.63	100.000	37.5	.2			5.59	
1246	.3	1.87	7.09	387	19.66	100.000	18.7	.4			5.66	
1249	.3	1.50	7.09	387	19.64	100.000	15.0	.5			5.73	
1252	.3	1.43	7.10	387	19.52	100.000	14.3	.6			5.80	
1255	.3	1.42	7.10	386	19.34	100.000	20.7	.7			5.84	
	Trench	RAW DRY										

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2xSVOCs	2xSVOC's	2xPCBs	2xPEST	1xD.MERC.	1xD.Metals		
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## SAMPLE RATE

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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good.Remarks: Extremely turbid water - H2S Odor

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>6X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X1LP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Field Notebook <u>Pg. 49</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41041</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 11/8/04Well Name W1-24Project CTO 86-Site 1Project No. 1990.086EWell Location Moffett- Site 1Sample Date 11/10/04Sampling Personnel D. HARRISONM. RAMOSSample ID 86-S1-067Duplicate ID N/AScreen Interval 6-16Station Elevation GND TOC            Immiscible Phases Present ☐ Yes ☒ NoStatic Water Level (from TOC) / Time 7.83/0827 7.83/0828 7.83/0829Average Water Level (from TOC) 7.83Reference Point TOC PID Readings (background) OppmReference Elevation            PID Reading (TOC) OppmStatic Elevation            Notes           Well Depth MEAS 20.26 RPTD            Feet of Water           Depth of Bottom of Tubing 11Depth to Water (w/ Tubing in Well) 7.83

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0850	.4	0.62	6.59	209	15.39	86072	2.9	.2			7.85	
0852	.4	0.45	6.56	198	15.30	86025	2.0	.4			7.87	
0856	.4	0.32	6.54	191	15.31	86022	1.8	.6			7.89	
0859	.4	0.31	6.51	187	15.32	86111	3.1	.8			7.90	
0902	.4	0.30	6.48	186	15.29	86160	5.3	1.0			7.90	
0905	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3XVOCs	2xSVOC's	2xPCBs	2xPEST	1xD.MERC.	1xD.Metals		
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## SAMPLE RATE

.1 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min	.4 L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Green/turbid water. VOC Samples effervescence

## FIELD EQUIPMENT

pH Meter HYDROLABSerial Number #R41041Number of Bottles 3x40mLTemperature Meter HYDROLABSerial Number #R410416X1LATurbidity Meter HYDROLABSerial Number #R410411X1LPSpec. Elec. Cond. Meter HYDROLABSerial Number #R410411X250mLPORP Meter HYDROLABSerial Number #R41041Field Notebook Pg. 52D.O. Meter HYDROLABSerial Number #R41041Interface Probe SOLINSTSerial Number #25582Sample Method Low FlowPID/OVA MINI-RAESerial Number #00320Pump GEO-PUMPSerial Number BA0041Filter Apparatus GEO-45 MICRONDischarge Water Containerized ☒ Yes ☐ No

## **SUPPLEMENTAL SAMPLING**

**JULY 2004**



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
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Well Name W1-1  
 Project CTO 86  
 Project No. 1990.086E  
 Well Location MOFFETT-SITE 1  
 Sample Date 7-7-04  
 Sampling Personnel B. Gole  
M. Ramos

Screen Interval 15-25  
 Station Elevation GND TOC Immiscible Phases Present ☐ Yes ☐ No  
 Static Water Level (from TOC) / Time 1108-5.49 1109-5.50 1110-5.50  
 Average Water Level (from TOC) 5.50  
 Reference Point TOC PID Readings (background) 0 PPM  
 Reference Elevation                      PID Reading (TOC) 0 PPM  
 Static Elevation                      Notes                       
 Well Depth MEAS 25.90 RPTD                      Feet of Water                       
 Depth of Bottom of Tubing 20  
 Depth to Water (w/ Tubing in Well) 5.49

Sample ID 86-S1-017  
 Duplicate ID NA

Duplicate ID		NA		Depth to Water (w/ Tubing in Well)									
PURGING													
Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments	
									Location	Value			
1110	.4	.80	6.16	-177	23.03	40592	6.7	.2			5.50	5.53	
1113	.4	.52	6.14	-145	25.07	41544	4.5	.5			5.51		
1116	.4	.46	6.12	-138	25.42	42276	4.3	.7			5.51		
1119	.4	.37	6.10	-133	25.26	42322	3.5	1.0			5.52		
1122	.4	.26	6.10	-138	25.06	42753	3.1	1.3			5.51		
1125	.4	.30	6.10	-133	25.01	42650	3.0	1.5			5.52		
1128	.4	.29	6.10	-132	24.99	42699	2.9	1.8			5.51		
1131	.4	.28	6.11	-132	25.00	42708	3.0	2.1			5.50		

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2x SVOCs	1x D. Hg											
SAMPLE RATE												
.4	.4											

## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GOODRemarks: Dissolved Mercury was Field Filtered

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter LA MOTTE  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump Geo-PUMP  
 Filter Apparatus Geo-.45 MICRON

Serial Number 41045  
 Serial Number 41045  
 Serial Number 02032  
 Serial Number 41045  
 Serial Number 41045  
 Serial Number 41045  
 Serial Number 25582  
 Serial Number 00320  
 Serial Number PINE 2443

Number of Bottles 3  
 Field Notebook pg. 23  
 Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



Well Name <u>WI-5</u>	Screen Interval <u>14.5 - 19.5</u>	Station Elevation <u>    </u> GND <u>    </u> TOC <u>    </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CFO 86</u>	Static Water Level (from TOC) / Time <u>1205-5.51</u> <u>1206-5.50</u> <u>1207-5.51</u>	Average Water Level (from TOC) <u>5.51</u>	
Project No. <u>1990-086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u> ppm	
Well Location <u>MOFFETT-SITE 1</u>	Reference Elevation <u>    </u>	PID Reading (TOC) <u>0</u> ppm	
Sample Date <u>7-6-04</u>	Static Elevation <u>    </u>	Notes <u>    </u>	
Sampling Personnel <u>B. Ogle</u>	Well Depth MEAS <u>21.32</u> RPTD <u>    </u>	Feet of Water <u>    </u>	
<u>M. Ramos</u>	Depth of Bottom of Tubing <u>17</u>		
Sample ID <u>86-SI-026</u>	Depth to Water (w/ Tubing in Well) <u>5.50</u>		
Duplicate ID <u>N/A</u>			

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $<0.33$  foot

### SAMPLE PARAMETERS

SAMPLE PARAMETERS							
2x SVOCs	1x D. Hg						
SAMPLE RATE							
.4	.4						

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Condition of Well: Good  
Remarks: Dissolved Mercury sample was Field Filtered

## FIELD EQUIPMENT

FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	41045	Number of Bottles	3
Temperature Meter	Hydrolab	Serial Number	41045		
Turbidity Meter	LA MOTTE	Serial Number	02032	Field Notebook	pg 19
Spec. Elec. Cond. Meter	Hydrolab	Serial Number	41045		
ORP Meter	Hydrolab	Serial Number	41045	Sample Method	Low Flow
D.O. Meter	Hydrolab	Serial Number	41045		
Interface Probe	Bolinist	Serial Number	25582		
PID/OVA	Mini-Rae	Serial Number	00320		
Pump	Geo-Pump	Serial Number	PINE 2443		
Filter Apparatus	Geo-.45 micron			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized ☒ Yes ☐ No



## Page 1 of 1

Date 7-6-04

Screen Interval 13-18

Station Elevation      GND      TOC      Immiscible Phases Present ☐ Yes ☒ No

Static Water Level (from TOC) / Time 1115 5:52 1116 5:50 1117 5:51

Average Water Level (from TOC) 5:51

Reference Point TOC PID Readings (background) 0 ppm

Reference Elevation      PID Reading (TOC) 0 ppm

Static Elevation      Notes     

Well Depth MEAS 22.60 RPTD      Feet of Water     

Depth of Bottom of Tubing 15.5

Depth to Water (w/ Tubing in Well) 5.50

Sample ID 86-S1-027  
Duplicate ID N/A

[illegible]

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

SAMPLE PARAMETERS							
2 x SVOCs	1 x D.Hg						

**SAMPLE RATE**

SAMPLE RATE							

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well:

Remarks: Dissolved Mercury was Field Filtered

## FIELD EQUIPMENT

pH Meter Hydrolab  
Temperature Meter Hydrolab  
Turbidity Meter LaMotte  
Spec. Elec. Cond. Meter Hydrolab  
ORP Meter Hydrolab  
D.O. Meter Hydrolab  
Interface Probe Solinco  
PID/OVA Mini-Rae  
Pump Geo-Pump  
Filter Apparatus Geo-.45 M

Serial Number	41045
Serial Number	41045
Serial Number	02032
Serial Number	41045
Serial Number	41045
Serial Number	41045
Serial Number	25582
Serial Number	00320
Serial Number	PINE 2443

Number of Bottles 3

Field Notebook pg 19

Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 7-6-04

Well Name <u>W1-12R</u>	Screen Interval <u>15-25</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86</u>	Static Water Level (from TOC) / Time <u>1435-2.92</u> <u>1436-2.92</u> <u>1437-2.92</u>	Average Water Level (from TOC) <u>2.92</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>	
Well Location <u>MOFFETT-SITE 1</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0 ppm</u>	
Sample Date <u>7-6-04</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
Sampling Personnel <u>B. OGLE</u>	Well Depth MEAS <u>25.65</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>20'</u>		
Sample ID <u>86-S1-024</u>	Depth to Water (w/ Tubing in Well) <u>2.92</u>		
Duplicate ID <u>N.A.</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1437	.4	.85	6.52	-20	28.37	55267	1.2	.3			2.92	
1440	.4	.66	6.52	-19	28.38	54129	9.2	.6			2.94	
1443	.4	.36	6.52	-19	28.08	53776	7.2	1.0			2.94	
1446	.4	.38	6.53	-18	27.09	54099	6.0	1.3			2.93	
1449	.4	.40	6.53	-17	26.86	53308	3.8	1.6			2.92	
1452	.4	.38	6.53	-17	26.91	53290	3.7	1.9			2.92	
1455	.4	.38	6.53	-18	26.77	53500	3.6	2.2			2.93	

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

<u>2 x SVOCs</u>	<u>1 x D.Hg</u>						
SAMPLE RATE							
<u>.4</u>	<u>.4</u>						

## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Dissolved Mercury Sample is Field Filtered

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>41045</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>41045</u>
Turbidity Meter <u>LAMOTTE</u>	Serial Number <u>02032</u>
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>41045</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>41045</u>
D.O. Meter <u>Hydrolab</u>	Serial Number <u>41045</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>
Pump <u>Geo-pump</u>	Serial Number <u>PINE 2443</u>
Filter Apparatus <u>Geo 45 micron</u>	

Number of Bottles 3Field Notebook pg. 20Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Well Name <u>W1-14</u>	Screen Interval <u>4.1-14.1</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86</u>	Static Water Level (from TOC) / Time <u>1538-5.76</u> <u>1539-5.76</u> <u>1540-5.76</u>	Average Water Level (from TOC) <u>5.76</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u> ppm	
Well Location <u>Moffett - Site 1</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u> ppm	
Sample Date <u>7-6-04</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
Sampling Personnel <u>B. Ogle</u>	Well Depth MEAS <u>17.68</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
<u>M. Ramos</u>	Depth of Bottom of Tubing <u>9.1</u>		
	Depth to Water (w/ Tubing in Well) <u>5.73</u>		
Sample ID <u>86-S1-022</u>			
Duplicate ID <u>86-S1-023</u>			

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SAMPLE PARAMETERS							
2 x SLOCs	1 x D. Hg						
SAMPLE RATE							
.4	.4						

**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Condition of Well: Good  
Remarks: Disolved Mercury sample was field filtered

### FIELD EQUIPMENT

FIELD EQUIPMENT	
pH Meter	Hydrolab
Temperature Meter	Hydrolab
Turbidity Meter	LA Motte
Spec. Elec. Cond. Meter	Hydrolab
ORP Meter	Hydrolab
D.O. Meter	Hydrolab
Interface Probe	Solinst
PID/OVA	Mini-Rae
Pump	Geo-Pump
Filter Apparatus	Geo .45 micron
Serial Number	41045
Serial Number	41045
Serial Number	41045 02032
Serial Number	41045
Serial Number	41045
Serial Number	41045
Serial Number	25582
Serial Number	00320
Serial Number	PINE 2443

Number of Bottles 12

Field Notebook pg 21

Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 7-7-04

Well Name W1-15  
 Project CTO 86  
 Project No. 1990.086E  
 Well Location MOFFETT-SITE 1  
 Sample Date 7-7-04  
 Sampling Personnel B. OGLE  
M. RAMOS

Screen Interval 4.4-14.4  
 Station Elevation      GND      TOC      Immiscible Phases Present ☐ Yes ☒ No  
 Static Water Level (from TOC) / Time 1018-5.84 1019-5.84 1020-5.84  
 Average Water Level (from TOC) 5.84  
 Reference Point TOC PID Readings (background) 0 ppm  
 Reference Elevation      PID Reading (TOC) 0 ppm  
 Static Elevation      Notes       
 Well Depth MEAS 17.42 RPTD      Feet of Water       
 Depth of Bottom of Tubing 9.4  
 Depth to Water (w/ Tubing in Well) 5.83

Sample ID 81-SI-018  
 Duplicate ID 81-SI-019

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EN/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1022	.4	.92	6.07	-317	25.88	38584	3.4	.2			5.84	
1025	.4	.59	6.11	-315	25.26	39554	3.2	.5			5.85	
1028	.4	.33	6.14	-310	25.12	39571	3.3	.7			5.86	
1031	.4	.29	6.17	-322	25.11	40861	3.2	1.0			5.85	
1034	.4	.29	6.15	-323	25.21	40790	3.2	1.3			5.85	
1037	.4	.28	6.16	-323	25.8	40916	3.2	1.5			5.84	

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2x SVOCs	1x D.Hg								
SAMPLE RATE									
.4	.4								

## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Dissolved Mercury Sample was Field Filtered

## FIELD EQUIPMENT

pH Meter HYDROLAB Serial Number 41045  
 Temperature Meter HYDROLAB Serial Number 41045  
 Turbidity Meter LAMOTTE Serial Number 02032  
 Spec. Elec. Cond. Meter HYDROLAB Serial Number 41045  
 ORP Meter HYDROLAB Serial Number 41045  
 D.O. Meter HYDROLAB Serial Number 41045  
 Interface Probe SOLINST Serial Number 25582  
 PID/OVA MINI-RAE Serial Number 00320  
 Pump GEO-PUMP Serial Number PINE 2443  
 Filter Apparatus GEO-.45 MICRON

Number of Bottles 3  
 Field Notebook pg. 22  
 Sample Method LOW FLOW  
 Discharge Water Containerized ☒ Yes ☐ No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Well Name <u>WI-16</u>	Screen Interval <u>5.4 - 15.4</u>	Station Elevation <u>        </u> GND <u>        </u> TOC <u>        </u>
Project <u>CTO 86</u>		Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>10:00 6.9</u> <u>10:01 6.91</u> <u>10:02 6.88</u>	
Well Location <u>MOFFATT - SITE 1</u>	Average Water Level (from TOC) <u>6.90</u>	
Sample Date <u>7-6-04</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>
Sampling Personnel <u>B. OGLE</u>	Reference Elevation <u>        </u>	PID Reading (TOC) <u>0 ppm</u>
<u>M. RAMOS</u>	Static Elevation <u>        </u>	Notes <u>        </u>
	Well Depth MEAS <u>18.23</u> RPTD <u>        </u>	Feet of Water <u>        </u>
Sample ID <u>86-51-029</u>	Depth of Bottom of Tubing <u>10.4</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>7.10</u>	

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

SAMPLE PARAMETERS						
2 x SVOCs	1 x Dis. HG					

**SAMPLE RATE**

SAMPLE RATE							
4	.4						

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Condition of Well: Good  
Remarks: DISSOLVED MERCURY IS FIELD FILTERED

### FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter LAMOTTE  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI RAZ  
 Pump G20-PUMP  
 Filter Apparatus G20-.45 MIC

Serial Number	41045
Serial Number	41045
Serial Number	02032
Serial Number	41045
Serial Number	41045
Serial Number	41045
Serial Number	25582
Serial Number	00320
Serial Number	PNE 2443

Number of Bottles 3

Field Notebook PG. 18

Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 7-7-04Well Name W1-19Project CTO 86Project No. 1990.086EWell Location MOFFETT-SITESample Date 7-7-04Sampling Personnel B. OgileM. RamosSample ID 86-S1-020Duplicate ID NAScreen Interval 14-19Station Elevation GND TOC     Immiscible Phases Present ☐ Yes ☒ NoStatic Water Level (from TOC) / Time 0713-5.30 0714-5.32 0715-5.33Average Water Level (from TOC) 5.32Reference Point TOCPID Readings (background) 0 ppmReference Elevation     PID Reading (TOC) 0 ppmStatic Elevation     Notes     Well Depth MEAS 21.29 RPTD     Feet of Water     Depth of Bottom of Tubing 16.5Depth to Water (w/ Tubing in Well) 5.31

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0715	.4	1.67	6.41	146	16.36	43660	4.1	.2			5.32	
0718	.4	.90	6.41	78	16.52	46109	3.9	.5			5.32	
0721	.4	.50	6.35	58	16.69	45344	3.3	.7			5.30	
0724	.4	.41	6.34	-68	16.82	45007	3.2	1.0			5.32	
0727	.4	.53	6.33	-72	16.95	44029	2.4	1.2			5.30	
0730	.4	.36	6.33	-71	16.99	43522	2.7	1.5			5.32	
0733	.4	.40	6.34	-75	17.01	43419	2.5	1.8			5.31	
0736	.4	.39	6.34	-79	17.02	43401	2.4	2.1			5.31	

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2 x SVOCs 1 x D.Hg

## SAMPLE RATE

.4 .4

## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Dissolved Mercury Sample was Field Filtered

## FIELD EQUIPMENT

pH Meter HydrolabSerial Number 41045Number of Bottles 3Temperature Meter HydrolabSerial Number 41045Turbidity Meter LamotteSerial Number 02032Spec. Elec. Cond. Meter HydrolabSerial Number 41045Field Notebook pg 22ORP Meter HydrolabSerial Number 41045D.O. Meter HydrolabSerial Number 41045Sample Method Low FlowInterface Probe SdinstSerial Number 41045PID/OVA Mini-RaeSerial Number 06320Pump Geo-PumpSerial Number PIUE 2443Filter Apparatus Geot. 45 MicronDischarge Water Containerized ☒ Yes ☐ No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Well Name <u>W1-22</u>	Screen Interval <u>N.A.</u>	Station Elevation <u>GND</u> TOC <u>      </u> Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86</u>	Static Water Level (from TOC) / Time <u>1348-3.62</u> <u>1349-3.62</u> <u>1350-3.61</u>	
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>3.62</u>	
Well Location <u>MOFFETT-SITE1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u> ppm
Sample Date <u>7-6-04</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u> ppm
Sampling Personnel <u>B. Ogle</u> <u>M. Ramas</u>	Static Elevation <u>      </u>	Notes <u>      </u>
	Well Depth MEAS <u>6.66</u> RPTD <u>      </u>	Feet of Water <u>      </u>
Sample ID <u>86-S1-025</u>	Depth of Bottom of Tubing <u>      </u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>3.62</u>	

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $<0.33$  foot.

### SAMPLE PARAMETERS

SAMPLE PARAMETERS							
2 x SVOCs	1 x D. Hg						
SAMPLE RATE							
.4	.4						

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well:

Condition of Well: Good

Condition of Well: Good  
Remarks: Discolored Mercury sample was field Filtered

## FIELD EQUIPMENT

FIELD EQUIPMENT	
pH Meter	Hydrolab
Temperature Meter	Hydrolab
Turbidity Meter	LAMOTTE
Spec. Elec. Cond. Meter	Hydrolab
ORP Meter	Hydrolab
D.O. Meter	Hydrolab
Interface Probe	Solinst
PID/OVA	Mini-Rae
Pump	Geo-pump
Filter Apparatus	Geo — .45 microns
Serial Number	41045
Serial Number	41045
Serial Number	02032
Serial Number	41045
Serial Number	41045
Serial Number	41045
Serial Number	25582
Serial Number	00320
Serial Number	PINE 2443

Number of Bottles 3

Field Notebook pg. 20

Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Well Name <u>W1-23</u>	Screen Interval <u>N/A</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86</u>	Static Water Level (from TOC) / Time <u>1518-5.46</u> <u>1519-5.46</u> <u>1520-5.46</u>	Average Water Level (from TOC) <u>5.46</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u> PPM	
Well Location <u>Moffett-Site 1</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u> ppm	
Sample Date <u>7-6-04</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
Sampling Personnel <u>B. Oak</u>	Well Depth MEAS <u>5.72</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
<u>M. Ramas</u>	Depth of Bottom of Tubing <u>5.80</u>		
Sample ID <u>86-S1-021</u>	Depth to Water (w/ Tubing in Well) <u>5.46</u>		
Duplicate ID <u>N/A</u>			

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

SAMPLE PARAMETERS							

**SAMPLE RATE**

SAMPLE RATE							

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: See note above

## FIELD EQUIPMENT

pH Meter Hydrolab  
 Temperature Meter Hydrolab  
 Turbidity Meter La Motte  
 Spec. Elec. Cond. Meter Hydrolab  
 ORP Meter Hydrolab  
 D.O. Meter Hydrolab  
 Interface Probe Solinst  
 PID/OVA Mini-Rae  
 Pump Geo-pump  
 Filter Apparatus Geo

Serial Number	41045
Serial Number	41045
Serial Number	02032
Serial Number	41045
Serial Number	41045
Serial Number	41045
Serial Number	25582
Serial Number	00320
Serial Number	PINE 2443

Number of Bottles 0

Field Notebook pg 20

Sample Method Low flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 7-6-04

Well Name <u>W1-24</u>	Screen Interval <u>6-16</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86</u>	Static Water Level (from TOC) / Time <u>1041 7.35</u> <u>1042 7.36</u> <u>1043 7.40</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>7.37</u>		
Well Location <u>MOFFETT-SITE 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>	
Sample Date <u>7-6-04</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0 ppm</u>	
Sampling Personnel <u>B. Ogle</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>M. Ramos</u>	Well Depth MEAS <u>20.25</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-028</u>	Depth of Bottom of Tubing <u>11'</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>7.40</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1040	.4	.96	6.55	-170	28.19	24407	3.6	.3			7.37	
1043	.4	.37	6.53	-177	27.41	27400	3.6	.6			7.38	
1046	.4	.29	6.53	-175	27.12	28009	3.7	1.0			7.39	
1049	.4	.24	6.49	-172	26.91	29660	3.4	1.2			7.39	
1052	.4	.23	6.47	-168	26.66	30080	3.3	1.5			7.39	
1055	.4	.23	6.47	-169	26.71	30074	3.4	1.8			7.40	

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2x SVOCs	1x A.Hg											
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## SAMPLE RATE

.4	.4											
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Dissolved Mercury sample was field filtered

## FIELD EQUIPMENT

pH Meter Hydrolab  
 Temperature Meter Hydrolab  
 Turbidity Meter LA MOTTE  
 Spec. Elec. Cond. Meter Hydrolab  
 ORP Meter Hydrolab  
 D.O. Meter Hydrolab  
 Interface Probe Solinst  
 PID/OVA Mini-RAE  
 Pump Geo-Pump  
 Filter Apparatus Geo-.45 micron

Serial Number 41045  
 Serial Number 41045  
 Serial Number 02032  
 Serial Number 41045  
 Serial Number 41045  
 Serial Number 41045  
 Serial Number 25582  
 Serial Number 00320  
 Serial Number PINE 2443

Number of Bottles 3Field Notebook pg. 18Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No

**AUGUST 2004**



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 8/18/04

Well Name <u>W1-1R</u>	Screen Interval <u>14.3-24.3</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R3/04</u>	Static Water Level (from TOC) / Time <u>8.41/0838</u> <u>8.41/0839</u> <u>8.41/0840</u>	Average Water Level (from TOC) <u>          </u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppa</u>	
Well Location <u>Moffett-Site 1</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Oppa</u>	
Sample Date <u>8/19/04</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>27.45</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>19.3</u>		
Sample ID <u>86-S1-030</u>	Depth to Water (w/ Tubing in Well) <u>8.43</u>		
Duplicate ID <u>N/A</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1345	.4	0.57	6.4	-93	28.9	63411	5.8	.2			8.45	
1348	.4	0.31	6.4	-95	28.6	61653	4.8	.4			8.47	
1351	.4	0.22	6.4	-95	28.2	61340	4.7	.6			8.48	
1354	.4	0.20	6.4	-95	28.0	61201	5.0	.8			8.51	
1357	.4	0.16	6.4	-96	27.8	58562	5.2	1.0			8.51	
1400	.4	0.14	6.4	-97	27.9	60215	9.6	1.2			8.52	
1403	.4	0.13	6.4	-98	27.9	60752	3.9	1.4			8.52	
1405	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOCs	1XD.MERC											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Clear/odorless water - Merc. samples were field filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Field Notebook <u>Pg. 32</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#03001</u>	
Filter Apparatus <u>GEO-.45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 8/18/04

Well Name <u>W1-5</u>	Screen Interval <u>14.5-19.5</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R3/04</u>	Static Water Level (from TOC) / Time <u>5.83/0929</u> <u>5.83/0930</u> <u>5.83/0931</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.83</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>8/19/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>21.33</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-038</u>	Depth of Bottom of Tubing <u>17</u>		
Duplicate ID <u>86-S1-039</u>	Depth to Water (w/ Tubing in Well) <u>5.80</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0918	0.4	1.04	7.2	-62	22.4	19131	3.0	0.2			5.83	
0921	0.4	0.62	7.2	-72	22.3	18791	2.9	0.4			5.90	
0924	0.4	0.40	7.3	-76	22.5	18890	2.0	0.6			5.92	
0927	0.4	0.31	7.3	-83	22.5	21780	2.0	0.8			5.91	
0930	0.4	0.26	7.3	-99	22.4	21821	1.7	1.0			5.92	
0933	0.4	0.23	7.3	-97	22.4	28856	1.7	1.2			5.92	
0935	Collect	Sample										
0945	Collect	Field Duplicate										

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

4XSVOcs	2XD.MERC											
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## SAMPLE RATE

0.4 L/min	0.4 L/min											
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Odorless/Colorless - Merc. was Field Filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Number of Bottles <u>4X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	<u>2X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Field Notebook <u>Pg. 29 + 30</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#03001</u>	
Filter Apparatus <u>GEO-.45 MICRON</u>		

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Well Name <u>W1-8</u>	Screen Interval <u>13-18</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R3/04</u>	Static Water Level (from TOC) / Time <u>5.89/0933</u> <u>5.89/934</u> <u>5.89/0935</u>	
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.89</u>	
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0.4 ppm</u>
Sample Date <u>8/19/04</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0.4 ppm</u>
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u></u>	Notes <u></u>
<u>M. RAMOS</u>	Well Depth MEAS <u>22.67</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>86-S1-040</u>	Depth of Bottom of Tubing <u>15.5</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.89</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1003	.4	0.73	7.0	-28	26.9	57190	4.3	.1			5.92	
10076	.4	0.38	7.2	-32	26.0	59456	3.1	.3			5.93	
1009	.4	0.23	7.2	-42	25.3	61245	3.3	.5			5.95	
1012	.4	0.19	7.3	-55	25.0	62247	2.9	.7			5.95	
1015	.4	0.17	7.2	-60	24.8	61872	2.2	.9			5.95	
1018	.4	0.16	7.2	-58	24.8	61763	2.9	1.1			5.96	
1020	Collect Sample											

### Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

2XSVOCS	1XD.MERC											
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### SAMPLE RATE

.4 L/min	.4 L/min											
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### Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Clear/odorless water - Merc. was field filtered

### FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Field Notebook <u>Pg. 30</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#03001</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



## Page 1 of 1

Date 8/18/04

Well Name <u>W1-14</u>	Screen Interval <u>4.1-14.1</u>	
Project <u>CTO 86-Site 1, R3/04</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>5.95/0910</u> <u>5.95/0911</u> <u>5.95/0912</u>	
Well Location <u>Moffett- Site 1</u>	Average Water Level (from TOC) <u>5.95</u>	
Sample Date <u>8/18/64</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Oppm</u>
<u>M. RAMOS</u>	Static Elevation <u>          </u>	Notes <u>          </u>
	Well Depth MEAS <u>17.68</u> RPTD <u>          </u>	Feet of Water <u>          </u>
Sample ID <u>86-S1-034</u>	Depth of Bottom of Tubing <u>9.1</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.95</u>	

## PURGING

[illegible]

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot.

### SAMPLE PARAMETERS

2XSVOCs	1XD.MERC						
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**SAMPLE RATE**

4 L/m	7 L/m						
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1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: *Good*

Remarks: odorless - Merc. was field filtered

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number	#03682
Serial Number	#03682
Serial Number	#03682
Serial Number	#03682
Serial Number	#03682
Serial Number	#03682
Serial Number	#25582
Serial Number	#00320
Serial Number	#03001

Number of Bottles 2X1LA  
1X250mLP

Field Notebook Pg. 27Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Well Name <u>W1-15</u>	Screen Interval <u>4.4-14.4</u>	Station Elevation <u>GND</u> TOC <u>        </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R3/04</u>	Static Water Level (from TOC) / Time <u>6.09/0843</u> <u>6.09/0844</u> <u>6.09/0845</u>	Average Water Level (from TOC) <u>6.09</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>	
Well Location <u>Moffett- Site 1</u>	Reference Elevation <u>        </u>	PID Reading (TOC) <u>0 ppm</u>	
Sample Date <u>8/18/04</u>	Static Elevation <u>        </u>	Notes <u>        </u>	
Sampling Personnel <u>D. HARRISON</u> <u>M. RAMOS</u>	Well Depth MEAS <u>17.45</u> RPTD <u>        </u>	Feet of Water <u>        </u>	
Sample ID <u>86-S1-031</u>	Depth of Bottom of Tubing <u>9.4</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>6.09</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1000	.7	0.77	6.9	-209	27.3	26205	3.2	.1			6.11	
1003	.7	0.20	7.2	-247	26.7	28762	2.7	.3			6.14	
1006	.7	0.15	7.2	-245	26.5	33831	1.7	.5			6.15	
1009	.7	0.11	7.3	-248	26.7	57655	1.2	.7			6.18	
1012	.7	0.09	7.3	-257	27.0	58587	1.2	.9			6.18	
1015	.7	0.08	7.4	-262	27.2	60314	3.1	1.1			6.19	
1018	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOCS	1XD.MERC						
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## SAMPLE RATE

.7 L/min	.7 L/min						
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Black, turbid water (lg. particles) - Sulphur odor - Merc. was Field Filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Field Notebook <u>Pg. 26</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#03001</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No





TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Well Name <u>W1-16</u>	Screen Interval <u>5.4-15.4</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R3/04</u>	Static Water Level (from TOC) / Time <u>7.75/0941</u> <u>7.75/0942</u> <u>7.75/0943</u>	
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>7.75</u>	
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>
Sample Date <u>8/19/04</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0 ppm</u>
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u></u>	Notes <u></u>
<u>M. RAMOS</u>	Well Depth MEAS <u>18.25</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>86-S1-042</u>	Depth of Bottom of Tubing <u>10.4</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>7.50</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
1245	.4	1.03	7.1	-53	28.9	71084	10.8	.1			7.55	
1248	.4	0.80	7.0	-47	29.0	55367	6.8	.3			7.56	
1251	.4	0.43	6.9	-47	29.1	34721	7.2	.5			7.57	
1254	.4	0.35	6.8	-51	29.0	31164	7.7	.7			7.59	
1257	.4	0.23	6.9	-58	28.8	32604	8.3	1.0			7.59	
1300	.4	0.20	6.9	-62	28.6	34502	7.4	1.2			7.60	
1303	.4	0.19	6.9	-64	28.6	34505	7.2	1.4			7.60	
1305	Collect Sample											

### Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

2XSVOCs	1XD.MERC											
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### SAMPLE RATE

.4 L/min	.4 L/min											
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### Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: H2S odor - Merc. was Field Filtered

### FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Field Notebook <u>Pgs 31 + 32</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Sample Method <u>Low Flow</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#03001</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



## Page 1 of 1

Date 8/18/04

Number of Bottles 2X1LA  
1X250mLP

Field Notebook Pg. 26

Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 8/18/04

Well Name <u>W1-22</u>	Screen Interval <u>N/A</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R3/04</u>	Static Water Level (from TOC) / Time <u>3.73/0924</u> <u>3.73/0925</u> <u>3.72/0926</u>	Average Water Level (from TOC) <u>3.73</u>
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0.0ppm</u>
Well Location <u>Moffett - Site 1</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0.0ppm</u>
Sample Date <u>8/19/04</u>	Static Elevation <u></u>	Notes <u></u>
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>6.70</u> RPTD <u></u>	Feet of Water <u></u>
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>6.0</u>	
Sample ID <u>86-S1-037</u>	Depth to Water (w/ Tubing in Well) <u>3.71</u>	
Duplicate ID <u>MS/MSD</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0828	0.7	1.03	7.1	-62	19.4	35061	2.5	0.2			3.73	
0831	0.7	0.72	7.2	-73	19.6	31860	2.0	0.4			3.75	
0834	0.7	0.47	7.2	-79	19.9	32131	1.7	0.6			3.78	
0837	0.7	0.39	7.3	-81	20.1	33408	1.8	0.8			3.82	
0840	0.7	0.34	7.3	-88	20.3	34797	1.9	1.0			3.86	
0843	0.7	0.36	7.3	-87	20.3	34688	2.1	1.2			3.88	
0845	Collect	Sample										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

6XSVOCS	3XD.MERC						
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## SAMPLE RATE

0.7 L/min	0.7 L/min						
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good - Collection TrenchRemarks: H2S odor / Black, turbid water (lg particles) - Merc. was field filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Number of Bottles <u>6 X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	<u>3X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Field Notebook <u>Pg. 29</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Sample Method <u>Low Flow</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#03001</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 8/18/04Well Name W1-23Project CTO 86-Site 1, R3/04Project No. 1990.086EWell Location Moffett- Site 1

Sample Date \_\_\_\_\_

Sampling Personnel D. HARRISONM. RAMOSScreen Interval N/AStation Elevation GND TOC \_\_\_\_\_Static Water Level (from TOC) / Time 5.30/0915 5.30/0916 5.30/0917Average Water Level (from TOC) 5.30Reference Point TOC

Reference Elevation \_\_\_\_\_

Static Elevation \_\_\_\_\_

Well Depth MEAS 6.0 RPTD \_\_\_\_\_Depth of Bottom of Tubing 5.8Depth to Water (w/ Tubing in Well) 5.30Immiscible Phases Present ☐ Yes ☒ NoPID Readings (background) OpenPID Reading (TOC) Open

Notes \_\_\_\_\_

Feet of Water \_\_\_\_\_

Sample ID 86-S1-033Duplicate ID N/A

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1313	.3	0.41	6.91	-18	28.32	100,000	1000+	.1			5.35	
1315	.3	0.37	6.89	-2	27.99	100,000	1000+	.3			5.47	
1318	.3	0.33	6.87	20	27.95	100,000	190	.4			5.67	
1321	.3	0.31	6.85	35	27.86	100,000	104.7	.5			5.72	
1324	.3	0.30	6.85	48	27.67	100,000	73.9	.7			5.78	
1325	Trench ran dry - NO sample collected											

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2XSVOCs	1XD.MERC											
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## SAMPLE RATE

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## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: H<sub>2</sub>S odor / extremely turbid - dk. green - Trench ran dry

## FIELD EQUIPMENT

pH Meter HYDROLABSerial Number #03682Temperature Meter HYDROLABSerial Number #03682Turbidity Meter HYDROLABSerial Number #03682Spec. Elec. Cond. Meter HYDROLABSerial Number #03682ORP Meter HYDROLABSerial Number #03682D.O. Meter HYDROLABSerial Number #03682Interface Probe SOLINSTSerial Number #25582PID/OVA MINI-RAESerial Number #00320Pump GEO-PUMPSerial Number #03001Filter Apparatus GEO- 45 MICRONNumber of Bottles 2X1LA1X250mLPField Notebook Pg. 27Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 8/18/04

Well Name <u>W1-24</u>	Screen Interval <u>6-16</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R3/04</u>	Static Water Level (from TOC) / Time <u>7.50/0937</u> <u>7.50/0938</u> <u>7.50/0939</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>7.50</u>		
Well Location <u>Moffett Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>	
Sample Date <u>8/19/04</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>Oppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>20.26</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-041</u>	Depth of Bottom of Tubing <u>11</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>7.53</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1044	.4	0.58	7.4	-119	26.1	62072	4.5	.2			7.54	
1047	.4	0.42	7.4	-124	25.7	60830	4.0	.4			7.56	
1050	.4	0.28	7.4	-125	25.3	62537	4.0	.6			7.58	
1053	.4	0.17	7.3	-119	25.0	62741	13.1	.8			7.61	
1056	.4	0.16	7.3	-113	24.9	63355	15.6	1.0			7.64	
1059	.4	0.14	7.3	-115	24.8	63511	16.3	1.2			7.66	
1102	.4	0.13	7.3	-110	24.7	64162	11.0	1.4			7.67	
1105	.4	0.13	7.2	-105	24.8	63037	8.4	1.6			7.68	
1108	.4	0.13	7.2	-102	24.9	63644	5.6	1.8			7.68	
1111	.4	0.12	7.2	-102	24.9	64120	4.2	2.0			7.68	
1120	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2XSVOCs	1XD.MERC						
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## SAMPLE RATE

.4 L/min	.4 L/min						
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: H2S odor - Merc. Sample was field filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Field Notebook <u>Pg. 31</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#03682</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>#03001</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**SEPTEMBER 2004**



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 9/27/04

Well Name W1-1R  
Project CTO 86-Site 1, R4/04  
Project No. 1990.086E  
Well Location Moffett-Site 1  
Sample Date 9/27/04  
Sampling Personnel D. HARRISON  
M. RAMOS

Screen Interval 14.3-24.3  
Station Elevation GND TOC            Immiscible Phases Present ☐ Yes ☒ No  
Static Water Level (from TOC) / Time 8.23/0933 8.23/0935 8.23/0935  
Average Water Level (from TOC) 8.23  
Reference Point TOC PID Readings (background) Off  
Reference Elevation            PID Reading (TOC) Off  
Static Elevation            Notes             
Well Depth MEAS 27.46 RPTD            Feet of Water             
Depth of Bottom of Tubing 19.3  
Depth to Water (w/ Tubing in Well) 8.23

Sample ID 86-S1-043  
Duplicate ID N/A

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1045	.4	1.33	6.95	74	23.7	72334	3.5	.1			8.24	
1048	.4	1.11	7.0	54	23.7	73921	1.6	.3			8.21	
1051	.4	0.98	7.05	36	24.0	75113	1.1	.5			8.28	
1054	.4	0.83	7.0	35	23.9	75427	1.9	.7			8.28	
1057	.4	0.74	7.0	33	23.7	75940	.9	.9			8.28	
1100	.4	0.71	7.0	31	23.6	76321	1.3	1.1			8.28	
1103	.4	0.68	7.0	30	23.5	76641	1.5	1.3			8.28	
1105	Collect	Sample										

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOCS	1XD.MERC								
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## SAMPLE RATE

.4 L/min	.4 L/min								
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## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good - NewRemarks: D. Merx was field filtered

## FIELD EQUIPMENT

pH Meter HYDROLAB  
Temperature Meter HYDROLAB  
Turbidity Meter HYDROLAB  
Spec. Elec. Cond. Meter HYDROLAB  
ORP Meter HYDROLAB  
D.O. Meter HYDROLAB  
Interface Probe SOLINST  
PID/OVA MINI-RAE  
Pump GEO-PUMP  
Filter Apparatus GEO-.45 MICRON

Serial Number #38518  
Serial Number #38518  
Serial Number #38518  
Serial Number #38518  
Serial Number #38518  
Serial Number #38518  
Serial Number #25582  
Serial Number #00320  
Serial Number BA0041

Number of Bottles 2X1LA  
1X250mLP  
Field Notebook Pg. 34  
Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 9/27/04

Well Name <u>W1-5</u>	Screen Interval <u>14.5-19.5</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R4/04</u>	Static Water Level (from TOC) / Time <u>5.54/1023</u> <u>5.54/1024</u> <u>5.54/1025</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.54</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>9/28/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>21.32</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-051</u>	Depth of Bottom of Tubing <u>17</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.54</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1010	.4	0.82	6.7	-33	19.5	71971	2.6	.2			5.57	
1013	.4	0.64	6.7	-54	20.4	69943	2.7	.4			5.58	
1016	.4	0.57	6.7	-76	20.3	70138	2.0	.6			5.60	
1019	.4	0.40	6.7	-92	20.1	70514	1.8	.8			5.61	
1022	.4	0.40	6.7	-86	20.1	70568	2.4	1.0			5.62	
1025	.4	0.41	6.7	-92	20.2	70207	2.2	1.2			5.62	
1028	.4	0.40	6.7	-94	20.0	70336	1.6	1.4			5.62	
1030	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOCS	1XD.MERC											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Strong H<sub>2</sub>S odor - greenish water - D. Merc was field filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Field Notebook <u>Pg. 39</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No





TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 9/27/04

Well Name <u>W1-8</u>	Screen Interval <u>13-18</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R4/04</u>	Static Water Level (from TOC) / Time <u>5.61/1027</u> <u>5.61/1028</u> <u>5.61/1029</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.61</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Opps</u>	
Sample Date <u>9/28/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Opps</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>22.67</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-052</u>	Depth of Bottom of Tubing <u>15.5</u>		
Duplicate ID <u>86-S1-053</u>	Depth to Water (w/ Tubing in Well) <u>5.61</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1254	.4	0.77	6.9	-43	25.2	65716	2.8	.2			5.65	
1257	.4	0.80	6.9	-44	24.0	70639	2.2	.4			5.68	
1300	.4	0.82	6.9	-44	22.7	71445	2.6	.6			5.70	
1303	.4	0.83	6.9	-44	20.6	71849	2.0	.8			5.72	
1305	Collect Sample											
1315	Collect Field Dep.											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

4XSVOCS	2XD.MERC											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Clear / H2S odor. D. Merc. was field filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Number of Bottles <u>4X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	<u>2X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Field Notebook <u>Pgs 39+40</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 9/27/04

Well Name <u>W1-12R</u>	Screen Interval <u>15-25</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R4/04</u>	Static Water Level (from TOC) / Time <u>2.93/10/12</u> <u>2.93/10/13</u> <u>2.93/10/14</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>2.93</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>9/28/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>25.66</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-048</u>	Depth of Bottom of Tubing <u>20</u>		
Duplicate ID <u>86-S1-049</u>	Depth to Water (w/ Tubing in Well) <u>2.93</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0759	.4	1.08	6.9	62	16.7	83768	4.2	.1			2.95	
0802	.4	0.74	6.9	56	17.0	83196	4.6	.3			2.96	
0805	.4	0.52	6.9	41	17.2	82304	5.8	.5			2.96	
0808	.4	0.50	6.9	38	17.3	82168	5.2	.7			2.96	
0811	.4	0.43	6.9	36	17.4	81940	4.6	.9			2.96	
0814	.4	0.41	6.9	33	17.5	81677	4.4	1.1			2.96	
0817	.4	0.39	6.9	33	17.6	81458	3.8	1.3			2.96	
0820	Collect	Sample										
0825	Collect	Field Duplicate										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

4XSVOCS	2XD.MERC											
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## SAMPLE RATE

.4	.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Number of Bottles <u>4X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	<u>2X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Field Notebook <u>Pgs. 37 + 38</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 9/27/04Well Name W1-14Project CTO 86-Site 1, R404Project No. 1990.086EWell Location Moffett- Site 1Sample Date 9/27/04Sampling Personnel D. HARRISONM. RAMOSSample ID 86-S1-047Duplicate ID MS/MSDScreen Interval 4.1-14.1Station Elevation GND TOC           Static Water Level (from TOC) / Time 5.84/1003 5.85/1004 5.84/1005Average Water Level (from TOC) 5.84Reference Point TOCReference Elevation           Static Elevation           Well Depth MEAS 17.67 RPTD           Depth of Bottom of Tubing 9.1Depth to Water (w/ Tubing in Well) 5.84Immiscible Phases Present ☐ Yes ☒ NoPID Readings (background) 0.00PID Reading (TOC) 0.00Notes           Feet of Water           

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1342	.4	0.76	6.4	-7	30.4	64140	1.9	.1			5.85	
1345	.4	0.76	6.4	-9	29.1	66370	2.9	.3			5.88	
1348	.4	0.76	6.3	-14	27.3	70922	3.2	.5			5.90	
1351	.4	0.76	6.3	-14	28.0	72128	2.4	.7			5.91	
1354	.4	0.76	6.3	-15	25.0	73740	2.2	.9			5.91	
1355	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

6XSVOCS	3XD.MERC											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: D. Merc. was field filtered - Colorless/slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter HYDROLAB  
Temperature Meter HYDROLAB  
Turbidity Meter HYDROLAB  
Spec. Elec. Cond. Meter HYDROLAB  
ORP Meter HYDROLAB  
D.O. Meter HYDROLAB  
Interface Probe SOLINST  
PID/OVA MINI-RAE  
Pump GEO-PUMP  
Filter Apparatus GEO-.45 MICRON

Serial Number #38518  
Serial Number #38518  
Serial Number #38518  
Serial Number #38518  
Serial Number #38518  
Serial Number #38518  
Serial Number #25582  
Serial Number #00320  
Serial Number BA0041

Number of Bottles 6X1LA  
3X250mLP

Field Notebook pgs. 35 + 36Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 9/27/04

Well Name <u>W1-15</u>	Screen Interval <u>4.4-14.4</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R4/04</u>	Static Water Level (from TOC) / Time <u>5.93/0936</u> <u>5.93/0957</u> <u>5.93/0938</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.93</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 Appm</u>	
Sample Date <u>9/27/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0 Appm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>17.74</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-044</u>	Depth of Bottom of Tubing <u>9.4</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.93</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1140	.4 L/min	0.94	6.41	11	23.8	72103	1.9	.1			5.95	
1143	.4	0.78	6.4	-4	27.2	70998	1.4	.3			5.77	
1144	.4	0.77	6.3	-7	26.4	71446	1.1	.5			5.79	
1149	.4	0.75	6.3	-11	25.4	72037	.7	.7			6.01	
1152	.4	0.72	6.3	-11	25.4	72313	1.0	.9			6.01	
1155	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOCS	1XD.MERC						
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## SAMPLE RATE

.4 L/min	.4 L/min						
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: clear/odorless water - D. Merc. was field filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Field Notebook <u>Pg. 34</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-.45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 9/27/04

Well Name <u>W1-16</u>	Screen Interval <u>5.4-15.4</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R4/04</u>	Static Water Level (from TOC) / Time <u>7.09/1035</u> <u>7.09/1036</u> <u>7.09/1037</u>	Average Water Level (from TOC) <u>7.09</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>	
Well Location <u>Moffett-Site 1</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>Oppm</u>	
Sample Date <u>9/28/04</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>18.24</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>10.4</u>		
Sample ID <u>86-S1-055</u>	Depth to Water (w/ Tubing in Well) <u>7.07</u>		
Duplicate ID <u>N/A</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1449	.4	0.84	6.6	-18	32.1	68186	3.2	.1			7.11	
1452	.4	0.65	6.6	-17	31.6	68944	2.6	.2			7.12	
1455	.4	0.64	6.6	-15	30.8	69251	2.4	.4			7.12	
1458	.4	0.63	6.7	-14	29.4	70139	1.6	.5			7.13	
1501	.4	0.61	6.7	-13	28.5	70936	1.0	.7			7.13	
1504	.4	0.60	6.7	-13	27.3	71475	1.4	.9			7.13	
1505	Collect Sample											

Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOCS	1XD.MERC											
SAMPLE RATE												
.4 L/min	.4 L/min											

Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Strong H<sub>2</sub>S odor / greenish-brown. D. Merc. was field filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Field Notebook <u>Pg. 41</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#38518</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 9/27/04Well Name W1-19Screen Interval 14-19Project CTO 86-Site 1, R4/04Station Elevation GND TOCImmiscible Phases Present ☐ Yes ☒ NoProject No. 1990.086EStatic Water Level (from TOC) / Time 5.47/0954 5.47/0955 5.47/0956Well Location Moffett- Site 1Average Water Level (from TOC) 5.47Sample Date 9/27/04Reference Point TOCPID Readings (background) 0 ppmSampling Personnel D. HARRISON

Reference Elevation

PID Reading (TOC) 3.6 ppmM. RAMOS

Static Elevation

Notes

Well Depth MEAS 21.19 RPTD

Feet of Water

Sample ID 86-S1-045Depth of Bottom of Tubing 16.5Duplicate ID N/ADepth to Water (w/ Tubing in Well) 5.47

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1244	.4	0.89	6.44	63	29.9	70304	2.5	.1			5.49	
1247	.4	0.70	6.41	55	28.6	70934	3.2	.3			5.53	
1250	.4	0.56	6.4	40	27.1	71116	3.6	.5			5.53	
1253	.4	0.54	6.4	38	26.8	71302	3.8	.7			5.54	
1256	.4	0.52	6.4	37	26.5	71494	3.5	.9			5.45	
1300	Collect	Sample										

Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOCS	1XD.MERC											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Water is colorless/odorless - D. Merc. was field filtered

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number #38518  
 Serial Number #38518  
 Serial Number #38518  
 Serial Number #38518  
 Serial Number #38518  
 Serial Number #38518  
 Serial Number #25582  
 Serial Number #00320  
 Serial Number BA0041

Number of Bottles 2X1LA1X250mLPField Notebook Pg. 35Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 9/27/04

Well Name <u>W1-22</u>	Screen Interval <u>N/A</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R4/04</u>	Static Water Level (from TOC) / Time <u>3.79/1017</u> <u>3.79/1018</u> <u>3.79/1019</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>3.79</u>		
Well Location <u>Moffett-Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Open</u>	
Sample Date <u>9/28/04</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Open</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>6.67</u> RPTD <u>6.7</u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-050</u>	Depth of Bottom of Tubing <u>          </u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>3.79</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0913	.4	1.31	6.8	4	20.1	45876	9.6	.1			3.81	
0916	.4	0.73	6.8	-9	20.4	45409	7.2	.3			3.84	
0919	.4	0.51	6.8	-22	20.6	45002	6.5	.5			3.84	
0922	.4	0.49	6.8	-28	20.9	44798	6.0	.7			3.87	
0925	.4	0.47	6.8	-27	20.8	44997	6.2	.9			3.93	
0930	Collect Sample											

Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOCS	1XD.MERC											
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## SAMPLE RATE

.4 c/m	.4 c/m											
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Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: H<sub>2</sub>S odor - greenish/brown water

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number #38518  
 Serial Number #38518  
 Serial Number #38518  
 Serial Number #38518  
 Serial Number #38518  
 Serial Number #38518  
 Serial Number #25582  
 Serial Number #00320  
 Serial Number BA0041

Number of Bottles 2X1LA  
1X250mLP  
 Field Notebook Pg. 38  
 Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 9/27/04

<b>Well Name</b> <u>W1-23</u>	Screen Interval <u>N/A</u>	
<b>Project</b> <u>CTO 86-Site 1, R4/04</u>	Station Elevation <u>    </u> GND <u>    </u> TOC <u>    </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Project No.</b> <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>5.34 / 1008</u> <u>5.34 / 1009</u> <u>5.34 / 1010</u>	
<b>Well Location</b> <u>Moffett- Site 1</u>	Average Water Level (from TOC) <u>5.34</u>	
<b>Sample Date</b> <u>    </u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Off</u>
<b>Sampling Personnel</b> <u>D. HARRISON</u>	Reference Elevation <u>    </u>	PID Reading (TOC) <u>Off</u>
<u>M. RAMOS</u>	Static Elevation <u>    </u>	Notes <u>    </u>
	Well Depth MEAS <u>6.0</u> RPTD <u>6.0</u>	Feet of Water <u>    </u>
<b>Sample ID</b> <u>86-S1-046</u>	Depth of Bottom of Tubing <u>5.80</u>	
<b>Duplicate ID</b> <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.34</u>	

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

2XSVOCs	1XD.MERC						
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## SAMPLE RATE

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**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: *Good*

Remarks: H2S odor / extremely turbid - Green / Black

## FIELD EQUIPMENT

pH Meter	<u>HYDROLAB</u>	Serial Number	<u>#38518</u>	Number of Bottles	<u>2X1LA</u>
Temperature Meter	<u>HYDROLAB</u>	Serial Number	<u>#38518</u>		<u>1X250mLP</u>
Turbidity Meter	<u>HYDROLAB</u>	Serial Number	<u>#38518</u>		
Spec. Elec. Cond. Meter	<u>HYDROLAB</u>	Serial Number	<u>#38518</u>	Field Notebook	<u>Pg. 37</u>
ORP Meter	<u>HYDROLAB</u>	Serial Number	<u>#38518</u>		
D.O. Meter	<u>HYDROLAB</u>	Serial Number	<u>#38518</u>	Sample Method	<u>Low Flow</u>
Interface Probe	<u>SOLINST</u>	Serial Number	<u>#25582</u>		
PID/OVA	<u>MINI-RAE</u>	Serial Number	<u>#00320</u>		
Pump	<u>GEO-PUMP</u>	Serial Number	<u>BA0041</u>		
Filter Apparatus	<u>GEO-45 MICRON</u>			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Date 9/27/04

<b>Well Name</b> <u>W1-24</u> <b>Project</b> <u>CTO 86-Site 1, R4/04</u> <b>Project No.</b> <u>1990.086E</u> <b>Well Location</b> <u>Moffett- Site 1</u> <b>Sample Date</b> <u>7/25/04</u> <b>Sampling Personnel</b> <u>D. HARRISON</u> <u>M. RAMOS</u> <b>Sample ID</b> <u>86-S1-054</u> <b>Duplicate ID</b> <u>N/A</u>	<b>Screen Interval</b> <u>6-16</u> <b>Station Elevation</b> <u>        </u> <b>GND</b> <u>        </u> <b>TOC</b> <u>        </u> <b>Static Water Level (from TOC) / Time</b> <u>7.25/</u> <b>Average Water Level (from TOC)</b> <u>7.25</u> <b>Reference Point</b> <u>TOC</u> <b>Reference Elevation</b> <u>        </u> <b>Static Elevation</b> <u>        </u> <b>Well Depth MEAS</b> <u>20.26</u> <b>RPTD</b> <u>        </u> <b>Depth of Bottom of Tubing</b> <u>11</u> <b>Depth to Water (w/ Tubing in Well)</b> <u>7.25</u>	<b>Immiscible Phases Present</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>PID Readings (background)</b> <u>Oppm</u> <b>PID Reading (TOC)</b> <u>Oppm</u> <b>Notes</b> <u>        </u> <b>Feet of Water</b> <u>        </u>
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## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOcs	1XD.MERC						
SAMPLE RATE							
0.4 C/m	0.4 C/m						

**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: *Good*

Remarks: HAS Odor - Greenish/Brown/occluded. D. Merc. Was field filtered

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#38518	Number of Bottles	2X1LA
Temperature Meter	HYDROLAB	Serial Number	#38518		1X250mLP
Turbidity Meter	HYDROLAB	Serial Number	#38518		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#38518	Field Notebook	Pg. 40
ORP Meter	HYDROLAB	Serial Number	#38518		
D.O. Meter	HYDROLAB	Serial Number	#38518	Sample Method	Low Flow
Interface Probe	SOLINST	Serial Number	#25582		
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO-45 MICRON			Discharge Water Contained	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**DECEMBER 2004**

<b>Well Name</b> <u>W1-1R</u>	<b>Screen Interval</b> <u>14.3-24.3</u>	
<b>Project</b> <u>CTO 86-Site 1</u>	<b>Station Elevation</b> <u>GND</u> <u>TOC</u>	<b>Immiscible Phases Present</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Project No.</b> <u>1990.086E</u>	<b>Static Water Level (from TOC) / Time</b> <u>8.06/0912</u> <u>8.05/0913</u> <u>8.05/0914</u>	
<b>Well Location</b> <u>Moffett - Site 1</u>	<b>Average Water Level (from TOC)</b> <u>8.05</u>	
<b>Sample Date</b> <u>12/13/04</u>	<b>Reference Point</b> <u>TOC</u>	<b>PID Readings (background)</b> <u>OPPW</u>
<b>Sampling Personnel</b> <u>D. HARRISON</u>	<b>Reference Elevation</b> _____	<b>PID Reading (TOC)</b> <u>OPPW</u>
<u>M. RAMOS</u>	<b>Static Elevation</b> _____	<b>Notes</b> _____
	<b>Well Depth MEAS</b> <u>27.45</u> <b>RPTD</b> _____	<b>Feet of Water</b> _____
<b>Sample ID</b> <u>86-S1-071</u>	<b>Depth of Bottom of Tubing</b> <u>19.3</u>	
<b>Duplicate ID</b> <u>N/A</u>	<b>Depth to Water (w/ Tubing in Well)</b> <u>8.05</u>	

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $<0.33$  foot.

## SAMPLE PARAMETERS

2XSVOCs	1xD.MERC.						
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## SAMPLE RATE

14	14						
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**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good - Needs paint

Remarks: Clear / odor free. D. Mercury was field filtered

## FIELD EQUIPMENT

pH Meter \_\_\_\_\_ **HYDROLAB**  
 Temperature Meter \_\_\_\_\_ **HYDROLAB**  
 Turbidity Meter \_\_\_\_\_ **HYDROLAB**  
 Spec. Elec. Cond. Meter \_\_\_\_\_ **HYDROLAB**  
 ORP Meter \_\_\_\_\_ **HYDROLAB**  
 D.O. Meter \_\_\_\_\_ **HYDROLAB**  
 Interface Probe \_\_\_\_\_ **SOLINST**  
 PID/OVA \_\_\_\_\_ **MINI-RAE**  
 Pump \_\_\_\_\_ **GEO-PUMP**  
 Filter Apparatus \_\_\_\_\_ **GEO-45 MICRON**

Serial Number	#R40797
Serial Number	#R40797
Serial Number	#R40797
Serial Number	#R40797
Serial Number	#R40797
Serial Number	#R40797
Serial Number	#25582
Serial Number	#00320
Serial Number	BA0041

Number of Bottles 2X1LA  
1X250mLP

Field Notebook Pg. 56

**Sample Method** Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 12/13/04

Well Name <u>W1-5</u>	Screen Interval <u>14.5-19.5</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>5.50/0855</u> <u>5.50/0856</u> <u>5.50/0857</u>	Average Water Level (from TOC) <u>5.50</u>
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppu</u>
Well Location <u>Moffett- Site 1</u>	Reference Elevation _____	PID Reading (TOC) <u>Oppu</u>
Sample Date <u>12-14-04</u>	Static Elevation _____	Notes _____
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>21.30</u> RPTD _____	Feet of Water _____
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>17</u>	
Sample ID <u>86-S1-079</u>	Depth to Water (w/ Tubing in Well) <u>5.50</u>	
Duplicate ID <u>86-S1-080</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0831	.4	0.56	6.77	153	14.69	65478	0.0	.2			5.51	
0834	.4	0.60	6.80	148	15.27	65455	0.0	.4			5.53	
0837	.4	0.60	6.79	153	15.26	65520	0.0	.4			5.54	
0840	.4	0.50	6.80	154	15.26	65465	0.0	.8			5.54	
0845	Collect Sample											
0855	Collect Field Duplicate											

### Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

SVOC's	D.MERC.						
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### SAMPLE RATE

.4	.4						
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### Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Clear / Slight H<sub>2</sub>S odor. D. Mercury was field filtered.

### FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	Number of Bottles <u>4x1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	<u>2x250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	Field Notebook <u>Pgs. 60+61</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	Sample Method <u>Low Flow</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-.45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 12/13/04

Well Name <u>W1-8</u>	Screen Interval <u>13-18</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>5.55/0859</u> <u>5.56/0900</u> <u>5.55/0901</u>	
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.55</u>	
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppu</u>
Sample Date <u>12-14-04</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>Oppu</u>
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u></u>	Notes <u></u>
<u>M. RAMOS</u>	Well Depth MEAS <u>22.68</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>86-S1-081</u>	Depth of Bottom of Tubing <u>15.5</u>	
Duplicate ID <u>n/a</u>	Depth to Water (w/ Tubing in Well) <u>5.55</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0910	.4	0.50	6.99	192	16.56	64852	6.4	.2			5.57	
0913	.4	0.26	6.99	180	16.64	64998	5.3	.4			5.58	
0916	.4	0.20	6.99	173	16.73	65064	4.2	.6			5.60	
0919	.4	0.16	7.00	168	16.74	65158	3.4	.8			5.62	
0922	.4	0.14	7.00	163	16.63	65340	2.3	1.1			5.63	
0925	.4											
0930	Collect Sample											

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

SVOC's	D.MERC.						
--------	---------	--	--	--	--	--	--

### SAMPLE RATE

.4 L/min	.4 L/min						
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### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Grn Turbidity / slight H<sub>2</sub>S odor. A. Mercury was field filtered

### FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	Number of Bottles <u>2x1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	<u>1x250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	Field Notebook <u>Pg. 61</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 12/13/04Well Name W1-12RProject CTO 86-Site 1Project No. 1990.086EWell Location Moffett- Site 1Sample Date 12-13-04Sampling Personnel D. HARRISONM. RAMOSScreen Interval 15-25Station Elevation GND TOCStatic Water Level (from TOC) / Time 2.75/0950 2.75/0951 2.75/0952Average Water Level (from TOC) 2.75Reference Point TOC

Reference Elevation

Static Elevation

Well Depth MEAS 25.65 RPTDDepth of Bottom of Tubing 20Depth to Water (w/ Tubing in Well) 2.75Immiscible Phases Present ☐ Yes ☒ NoPID Readings (background) OppmPID Reading (TOC) Oppm

Notes

Feet of Water

Sample ID 86-S1-076Duplicate ID 86-S1-077

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1440	.4	0.36	6.81	345	23.11	56397	29	.2			2.76	
1443	.4	0.30	6.82	353	23.21	56763	50	.4			2.77	
1446	.4	0.28	6.85	357	23.09	56759	60	.6			2.78	
1449	.4	0.24	6.82	359	22.01	58289	34	.8			2.78	
1452	.4	0.23	6.86	355	22.77	57934	32	1.0			2.78	
1455	.4	0.27	6.84	349	22.40	57872	32	1.2			2.78	
1458	.4	0.27	6.84	348	21.95	58308	33	1.4			2.78	
1500	Collect Sample											

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

### SAMPLE PARAMETERS

SVOCs	D.MERC						
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### SAMPLE RATE

.4	.4						
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### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: DK grn. Turbid water / Strong H<sub>2</sub>S odor. D. Merc. was field filtered

### FIELD EQUIPMENT

pH Meter HYDROLABTemperature Meter HYDROLABTurbidity Meter HYDROLABSpec. Elec. Cond. Meter HYDROLABORP Meter HYDROLABD.O. Meter HYDROLABInterface Probe SOLINSTPID/OVA MINI-RAEPump GEO-PUMPFilter Apparatus GEO-.45 MICRONSerial Number #R40797Serial Number #R40797Serial Number #R40797Serial Number #R40797Serial Number #R40797Serial Number #R40797Serial Number #25582Serial Number #00320Serial Number BA0041
Number of Bottles 4x1LA  
6x1LA  
2x250mLP
Field Notebook Pgs 58+59Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 12/13/04Well Name W1-14Project CTO 86-Site 1Project No. 1990.086EWell Location Moffett- Site 1Sample Date 12-13-04Sampling Personnel D. HARRISONM. RAMOSSample ID 86-S1-075Duplicate ID N/AScreen Interval 4.1-14.1Station Elevation GND TOC Immiscible Phases Present ☐ Yes ☒ NoStatic Water Level (from TOC) / Time 5.55/0942 5.55/0942 5.55/0943Average Water Level (from TOC) 5.55Reference Point TOCReference Elevation Static Elevation Well Depth MEAS 17.70 RPTD Depth of Bottom of Tubing 9.1Depth to Water (w/ Tubing in Well) 5.55PID Readings (background) 0 ppmPID Reading (TOC) 0 ppmNotes Feet of Water 

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1335	.4	0.77	6.80	363	25.34	52878	27	.2			5.58	
1338	.4	0.48	6.89	329	21.55	56968	26	.4			5.60	
1341	.4	0.33	6.89	129	25.05	53496	13	.6			5.62	
1344	.4	0.25	6.89	81	25.71	53559	6.3	.8			5.61	
1347	.4	0.19	6.86	90	26.02	55016	4.6	1.0			5.63	
1350	.4	0.16	6.84	106	26.20	55418	4.8	1.2			5.64	
1353	.4	0.15	6.84	114	26.38	55406	3.7	1.4			5.64	
1356	.4	0.15	6.84	116	26.48	55397	3.1	1.6			5.65	
1358	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

SVOCs	D.MERC.						
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## SAMPLE RATE

.4 L/min	.4 L/min						
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Slight brown turbidity/odor free. D. Mercury was field filtered

## FIELD EQUIPMENT

pH Meter HYDROLABSerial Number #R40797Number of Bottles 2X1LATemperature Meter HYDROLABSerial Number #R407971X250mLPTurbidity Meter HYDROLABSerial Number #R40797Spec. Elec. Cond. Meter HYDROLABSerial Number #R40797ORP Meter HYDROLABSerial Number #R40797D.O. Meter HYDROLABSerial Number #R40797Interface Probe SOLINSTSerial Number #25582PID/OVA MINI-RAESerial Number #00320Pump GEO-PUMPSerial Number BA0041Filter Apparatus GEO-.45 MICRONField Notebook Pg. 57+58Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No

Page 1 of 1Date 12/13/04

Number of Bottles 6X1LA  
3X250mLP

Field Notebook Pgs. 56+57

Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No





TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 12/13/04Well Name W1-16Project CTO 86-Site 1Project No. 1990.086EWell Location Moffett- Site 1Sample Date 12-14-04Sampling Personnel D. HARRISONM. RAMOSSample ID 86-S1-083Duplicate ID N/AScreen Interval 5.4-15.4Station Elevation GND TOC        Immiscible Phases Present ☐ Yes ☒ NoStatic Water Level (from TOC) / Time 7.10 - 0907 7.10 - 0908 7.10 - 0909Average Water Level (from TOC) 7.10Reference Point TOCReference Elevation       Static Elevation       Well Depth MEAS 18.24 RPTD       Depth of Bottom of Tubing 10.4Depth to Water (w/ Tubing in Well) 7.10PID Readings (background) 0.0ppmPID Reading (TOC) 0.0ppmNotes       Feet of Water       

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1019	.4	0.40	6.71	116	18.13	66602	0.5	.2			7.12	
1022	.4	0.14	6.75	98	18.19	67065	0.0	.4			7.16	
1025	.4	0.08	6.74	68	18.24	68045	0.0	.6			7.17	
1028	.4	0.09	6.73	111	18.38	68904	0.0	.8			7.18	
1031	.4	0.05	6.71	134	18.35	69649	0.0	1.0			7.20	
1034	.4	0.06	6.71	136	18.37	69723	0.0	1.2			7.22	
1035	Collected Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

SVOC's	D.MERC.											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Clear / slight H<sub>2</sub>S odor. D. Mercury was field filtered

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number #R40797  
 Serial Number #R40797  
 Serial Number #R40797  
 Serial Number #R40797  
 Serial Number #R40797  
 Serial Number #R40797  
 Serial Number #25582  
 Serial Number #00320  
 Serial Number BA0041

Number of Bottles 2X11A  
1X250mLP

Field Notebook Pgs. 62 + 63Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No

Well Name <u>W1-19</u>	Screen Interval <u>14-19</u>	
Project <u>CTO 86-Site 1</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>5.15/0936</u> <u>5.15/0937</u> <u>5.15/0938</u>	
Well Location <u>Moffett- Site 1</u>	Average Water Level (from TOC) <u>5.15</u>	
Sample Date <u>12-13-04</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Open</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Open</u>
<u>M. RAMOS</u>	Static Elevation <u>          </u>	Notes <u>          </u>
	Well Depth MEAS <u>21.30</u> RPTD <u>          </u>	Feet of Water <u>          </u>
Sample ID <u>86-S1-073</u>	Depth of Bottom of Tubing <u>16.5</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.15</u>	

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot.

## SAMPLE PARAMETERS

SVOCs	D.MERC.						
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### SAMPLE RATE

.4 L/m	.4 L/m						
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**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good.

Remarks: Clear/odor free, D. Mercury was field filtered

## FIELD EQUIPMENT

pH Meter	HYDROLAB	Serial Number	#R40797	Number of Bottles	2X1LA
Temperature Meter	HYDROLAB	Serial Number	#R40797		1x250mLP
Turbidity Meter	HYDROLAB	Serial Number	#R40797		
Spec. Elec. Cond. Meter	HYDROLAB	Serial Number	#R40797		
ORP Meter	HYDROLAB	Serial Number	#R40797	Field Notebook	Pg. 57
D.O. Meter	HYDROLAB	Serial Number	#R40797		
Interface Probe	SOLINST	Serial Number	#25582	Sample Method	Low Flow
PID/OVA	MINI-RAE	Serial Number	#00320		
Pump	GEO-PUMP	Serial Number	BA0041		
Filter Apparatus	GEO-45 MICRON			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 12/13/04

Well Name <u>W1-22</u>	Screen Interval <u>N/A</u>	Station Elevation <u>GND</u> TOC <u>  </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>3.80/0954</u> <u>3.80/0955</u> <u>3.80/0956</u>	Average Water Level (from TOC) <u>3.80</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Open</u>	
Well Location <u>Moffett- Site 1</u>	Reference Elevation <u>  </u>	PID Reading (TOC) <u>Open</u>	
Sample Date <u>12-14-04</u>	Static Elevation <u>  </u>	Notes <u>  </u>	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>6.75</u> RPTD <u>  </u>	Feet of Water <u>  </u>	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>6.0</u>		
Sample ID <u>86-S1-078</u>	Depth to Water (w/ Tubing in Well) <u>3.80</u>		
Duplicate ID <u>N/A</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0755	.4	0.87	6.86	161	14.84	44347	2.8	1.2			3.82	
0758	.4	0.70	6.85	162	15.10	43995	2.3	.4			3.85	
0801	.4	0.31	6.85	163	15.30	43803	1.6	1.4			3.87	
0804	.4	0.22	6.84	164	15.32	43812	1.2	1.8			3.88	
0807	.4	0.21	6.84	164	15.36	43822	8.9	1.0			3.91	
0810	.4	0.21	6.84	165	15.44	43750	7.2	1.2			3.93	
0812	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2xSVOC's	1xD.MERC.						
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## SAMPLE RATE

.4 L/min	.4 L/min						
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: DK Brn. Turbid / Slight H<sub>2</sub>S odor. D. Mercury was field filtered

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	Number of Bottles <u>2x1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	<u>1x250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	Field Notebook <u>Pg 160</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	Sample Method <u>Low Flow</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-.45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Well Name <u>W1-23</u>	Screen Interval <u>n/a</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>5.75/0945</u> <u>5.75/0946</u> <u>5.75/0947</u>	Average Water Level (from TOC) <u>5.75</u>
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>
Well Location <u>Moffett- Site 1</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0ppm</u>
Sample Date <u>N/A</u>	Static Elevation <u></u>	Notes <u></u>
Sampling Personnel <u>D. HARRISON</u> <u>M. RAMOS</u>	Well Depth MEAS <u></u> RPTD <u>6.0</u>	Feet of Water <u></u>
Sample ID <u>86-S1-074</u>	Depth of Bottom of Tubing <u>5.85 N</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.75</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1420	0.3	1.96	7.22	334	24.63	84779	1000	0.1			5.80	
1423	0.3	1.78	7.25	291	23.90	84972	1000	0.2			5.85	
1424	Trench	ran	dry									

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SvOCs	D.MERC.											
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## SAMPLE RATE

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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Brown-turbid water / slight H<sub>2</sub>S odor. ~~A Mercury was field filtered.~~

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	Field Notebook <u>Pg. 58</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R40797</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	Sample Method <u>Low Flow</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Well Name <u>W1-24</u>	Screen Interval <u>6-16</u>	Station Elevation <u>      </u> GND <u>      </u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1</u>	Static Water Level (from TOC) / Time <u>7.11/0903</u> <u>7.10/0904</u> <u>7.10/0905</u>	Average Water Level (from TOC) <u>7.10</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppm</u>	
Well Location <u>Moffett- Site 1</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0 ppm</u>	
Sample Date <u>12-14-04</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>20.25</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>11</u>		
	Depth to Water (w/ Tubing in Well) <u>7.10</u>		
Sample ID <u>86-S1-082</u>			
Duplicate ID <u>N/A</u>			

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SVOC's	D.MERC.						
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**SAMPLE RATE**

4 c/m	4 c/m						
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**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good.

Remarks: Slight br. turbid / Slight H2S odor. D. Merc. was field filtered

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number	#R40797
Serial Number	#R40797
Serial Number	#R40797
Serial Number	#R40797
Serial Number	#R40797
Serial Number	#R40797
Serial Number	#25582
Serial Number	#00320
Serial Number	BA0041

Number of Bottles 2x1LA  
2x250mLP

Field Notebook pg. 62

Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No

**APPENDIX B**

**ANALYTICAL SUMMARY TABLES  
AND CCL EVALUATION TABLES**

## **LIST OF APPENDIX B TABLES**

### **Regularly Scheduled Sampling**

Table B-1	March 2004 Validated Analytical Results, Site 1 Landfill
Table B-2	May 2004 Validated Analytical Results, Site 1 Landfill
Table B-3	November 2004 Validated Analytical Results, Site 1 Landfill

### **Supplemental Sampling**

Table B-4	July 2004 Analytical Results for Dissolved Mercury and Semivolatile Organic Compounds, Site 1
Table B-5	August 2004 Analytical Results for Dissolved Mercury and Semivolatile Organic Compounds, Site 1
Table B-6	September 2004 Analytical Results for Dissolved Mercury and Semivolatile Organic Compounds, Site 1
Table B-7	December 2004 Analytical Results for Dissolved Mercury and Semivolatile Organic Compounds, Site 1

### **Statistical Evaluation**

Table B-8	Summary – Dissolved Metals
Table B-9	Summary – VOCs
Table B-10	Summary – SVOCs

## **REGULARLY SCHEDULED SAMPLING**



**TABLE B-1**  
**MARCH 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	71-S1-017 W1-1 3/29/04	71-S1-018 W1-15 3/29/04	71-S1-019 W1-19 3/30/04	71-S1-020 W1-19 (DUP) 3/30/04	71-S1-022 W1-14 3/30/04	71-S1-023 W1-12R 3/29/04	71-S1-024 W1-22 <sup>a</sup> 3/29/04	71-S1-025 W1-5 3/30/04	71-S1-026 W1-8 3/30/04	71-S1-027 W1-8 (DUP) 3/30/04	71-S1-028 W1-24 3/31/04	71-S1-029 W1-16 3/31/04
<b>Total Metals (µg/L)</b>												
Aluminum	4,000 U	4,000 U	1,230 J	4,000 U	4,000 U	4,000 U	1,320 J	2,610 J	4,000 U	4,000 U	4,000 U	4,000 U
Antimony	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U
Arsenic	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Barium	69.6 J	148 J	81 J	74.8 J	160 J	80.8 J	311	491	117 J	111 J	208	359
Beryllium	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Cadmium	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Chromium	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U
Cobalt	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U
Copper	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Lead	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Mercury	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
Nickel	400 U	400 U	400 U	400 U	400 U	206 J	400 U	400 U	400 U	400 U	400 U	400 U
Selenium	52.3 J	52.3 J	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Silver	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U
Thallium	100 U	100 U	100 U	100 U	100 U	100 U	62.9 J	100 U	100 U	100 U	56.6 J	100 U
Vanadium	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Zinc	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U
<b>Dissolved Metals (µg/L)</b>												
Aluminum	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U	4,000 U <sup>b</sup>	4,000 U <sup>b</sup>	4,000 U <sup>b</sup>	<b>3,800 J</b>
Antimony	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U
Arsenic	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Barium	<b>66.6 J</b>	<b>157 J</b>	<b>81.8 J</b>	<b>83.4 J</b>	<b>145 J</b>	<b>75.8 J</b>	<b>313</b>	<b>485</b>	<b>121 J</b>	<b>164 J</b>	<b>246</b>	<b>384</b>
Beryllium	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Cadmium	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Chromium	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	<b>107 J</b>	400 U	400 U
Cobalt	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U
Copper	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Lead	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Mercury	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
Nickel	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U
Selenium	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Silver	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U
Thallium	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Vanadium	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Zinc	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	102 J	400 U	400 U

**TABLE B-1**  
**MARCH 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	71-S1-017 W1-1 3/29/04	71-S1-018 W1-15 3/29/04	71-S1-019 W1-19 3/30/04	71-S1-020 W1-19 (DUP) 3/30/04	71-S1-022 W1-14 3/30/04	71-S1-023 W1-12R 3/29/04	71-S1-024 W1-22 <sup>a</sup> 3/29/04	71-S1-025 W1-5 3/30/04	71-S1-026 W1-8 3/30/04	71-S1-027 W1-8 (DUP) 3/30/04	71-S1-028 W1-24 3/31/04	71-S1-029 W1-16 3/31/04
<i>VOCs (µg/L)</i>												
1,1,1,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,1-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,2,3-Trichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,2,3-Trichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,2,4-Trichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,2,4-Trimethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 U	2 U
1,2-Dichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,3,5-Trimethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,3-Dichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,3-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
1,4-Dichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
2,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
2-Butanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U
2-Chlorotoluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U
4-Chlorotoluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
4-Methyl-2-pentanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U
Acetone	10 U	10 U	10 U	10 U	10 U	10 U	6 J	10 UJ	10 UJ	10 UJ	10 U	10 U
Benzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Bromobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Bromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
Carbon disulfide	0.5 UJ	0.21 J	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Chloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U

**TABLE B-1**  
**MARCH 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	71-S1-017 W1-1 3/29/04	71-S1-018 W1-15 3/29/04	71-S1-019 W1-19 3/30/04	71-S1-020 W1-19 (DUP) 3/30/04	71-S1-022 W1-14 3/30/04	71-S1-023 W1-12R 3/29/04	71-S1-024 W1-22 <sup>a</sup> 3/29/04	71-S1-025 W1-5 3/30/04	71-S1-026 W1-8 3/30/04	71-S1-027 W1-8 (DUP) 3/30/04	71-S1-028 W1-24 3/31/04	71-S1-029 W1-16 3/31/04
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Dibromomethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Dichlorodifluoromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Hexachlorobutadiene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Isopropylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
m,p-Xylene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
Methylene chloride	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 U	2 U
Naphthalene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
n-Butylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
n-Propylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
o-Xylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
p-Isopropyltoluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
sec-Butylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
tert-Butylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Trichlorofluoromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
<b>PCBs (µg/L)</b>												
Aroclor-1016	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	1 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1221	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	1 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1232	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	1 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1242	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Aroclor-1248	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	1 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1254	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	1 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1260	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	1 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
<b>Pesticides (µg/L)</b>												
4,4'-DDD	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 UJ	0.1 UJ	0.039 J	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ
4,4'-DDE	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.1 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
4,4'-DDT	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 UJ	0.1 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ
Aldrin	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
alpha-BHC	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.033 J	0.047 U	0.047 U	0.047 U	0.047 U	0.018 J

**TABLE B-1**  
**MARCH 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	71-S1-017 W1-1 3/29/04	71-S1-018 W1-15 3/29/04	71-S1-019 W1-19 3/30/04	71-S1-020 W1-19 (DUP) 3/30/04	71-S1-022 W1-14 3/30/04	71-S1-023 W1-12R 3/29/04	71-S1-024 W1-22 <sup>a</sup> 3/29/04	71-S1-025 W1-5 3/30/04	71-S1-026 W1-8 3/30/04	71-S1-027 W1-8 (DUP) 3/30/04	71-S1-028 W1-24 3/31/04	71-S1-029 W1-16 3/31/04
alpha-Chlordane	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
beta-BHC	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.047 U	0.029 J	0.047 U	0.047 U	0.047 U	0.047 J
delta-BHC	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 UJ	0.05 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.03 J
Dieldrin	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.1 U	0.05 J	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endosulfan I	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Endosulfan II	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.1 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endosulfan sulfate	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.1 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endrin	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.1 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endrin aldehyde	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.1 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endrin ketone	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 UJ	0.1 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ
gamma-BHC (Lindane)	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
gamma-Chlordane	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Heptachlor	0.047 UJ	0.047 UJ	0.013 J	0.047 U	0.047 UJ	0.05 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ	0.047 UJ
Heptachlor epoxide	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.05 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Methoxychlor	0.47 UJ	0.47 UJ	0.47 UJ	0.47 U	0.47 UJ	0.5 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ
Toxaphene	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
<b>General Chemistry (mg/L)</b>												
Nitrate as Nitrogen	0.14	0.1 U	0.1 U	0.1 U	0.118	1.11	0.527	1.68	2.95	2.99	0.215	0.1 U
TOC	6.07	12.90	9.41	9.00	11.80	6.48	95.30	11.30	10.00	10.00	22.00	18.00

**Notes:**<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1

<sup>b</sup> – Aluminum was detected but was not confirmed in the Trace-ICP run and lab contamination was suspected during dilution process. Therefore, the result was reported from the Trace-ICT re-run on 04/26/04. Shading indicates concentration above the calculated concentration limit.

Metals analysis was conducted using Environmental Protection Agency (EPA) Test Method 6010B. Per the *Final Technical Memorandum Site 1 Groundwater Evaluation Process*, issued on April 8, 2004, future dissolved metals sampling will be performed using EPA Test Method 200.8.

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

mg/L – milligrams per liter

BHC – benzenehexachloride

COC – constituent of concern

DDD – dichlorodiphenyldichloroethane

DDE – dichlorodiphenyltrichloroethylene

DDT – dichlorodiphenyltrichloroethane

DUP – duplicate sample

J – estimated value

NAS – Naval Air Station

PCB – polychlorinated biphenyl

TOC – total organic carbon

U – analyte not detected above project reporting limit

UJ – analyte not detected above the estimated reporting limit

VOC – volatile organic compound

**TABLE B-2**  
**MAY 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-001 W1-1 5/24/04	86-S1-002 W1-1 (DUP) 5/24/04	86-S1-003 W1-15 5/24/04	86-S1-004 W1-19 5/25/04	86-S1-006 W1-14 5/25/04	86-S1-007 W1-14 (DUP) 5/25/04	86-S1-008 W1-12R 5/25/04	86-S1-009 W1-22 <sup>a</sup> 5/26/04	86-S1-010 W1-5 5/26/04	86-S1-011 W1-8 5/26/04	86-S1-012 W1-24 5/26/04	86-S1-013 W1-16 5/26/04
<b>Dissolved Metals ( µg/L) EPA Method 200.8 (unless otherwise noted)</b>												
Aluminum (EPA Method 6010B)	50U	50U	50U	50U	50U	50U	50U	50U	50U	50U	50U	50U
Antimony	1.02 U	0.9 U	0.98 U	2.2	0.9U	0.9U	0.93 U	0.65 U	2.09	1.86 U	2.14	2.25 J
Arsenic	0.63 J	0.6 J	5.17	3.04 J	5.35 J	4.92J	2.24 J	2.56 J	3.62 J	1.57 J	6.78 J	6.43 J
Barium	<b>71.5</b>	<b>72J</b>	<b>181</b>	<b>86.6</b>	<b>152</b>	<b>155 J</b>	<b>78.2</b>	<b>357</b>	<b>524</b>	<b>130</b>	<b>214</b>	<b>229 J</b>
Beryllium	0.007 U	0.006 U	0.016 J	0.009 U	0.01 U	0.011U	0.006 U	0.023 J	0.007 U	0.006 U	0.014 J	0.013 J
Cadmium	0.171	0.185 J	0.006 U	0.414	0.011 J	0.009U	0.066	0.006 U	0.012 J	0.134	0.006 U	0.054 J
Chromium	0.72	0.64J	1.76	0.37 J	0.56	0.54J	0.46	3.84	0.8	0.43	1.23	0.49 J
Cobalt	3.49 J	3.41J	2.65	8.24 J	7.16 J	7.69 J	5.67 J	0.956 J	3.09 J	0.882 J	4.65 J	5.61 J
Copper	0.51	0.5 J	0.22	1.56	0.14 J	0.11 J	0.17 J	0.38	0.08 J	0.26	0.19 J	0.13 J
Lead	0.023 J	0.02J	0.018 U	0.076	0.02 J	0.022J	0.018 U	0.018 U	0.018 U	0.018 U	0.024 J	0.247 J
Mercury (EPA Method 7470A)	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ
Nickel	19.4	19.6 J	6.06	13	9.47	9.72J	41	75.9	6.86	5.66	14.8	14.4 J
Selenium (EPA Method 7742)	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Silver	0.054	0.033J	0.011 J	0.02 J	0.016 J	0.033 J	0.038 J	0.01 U	0.01 U	0.034 J	0.016 J	<b>0.239 J</b>
Thallium	0.066	0.065J	0.001 U	0.067	0.006 U	0.006U	0.022 J	0.002 U	0.016 U	0.025 J	0.008 U	0.008 U
Vanadium (EPA Method 6010B)	11.8	6 U	6 U	6 U	9 J	6 U	6 U	6 U	10.2	6 U	6.8 J	6 U
Zinc	7020	<b>8810<sup>b</sup></b>	2.38 J	3.4 J	1.22 J	1.19J	41.3 J	26.3 J	0.87 J	3.74 J	1.17 J	0.46 J
<b>VOCs ( µg/L) EPA Method 8260B</b>												
1,1,1,2-Tetrachloroethane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U

**TABLE B-2**  
**MAY 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-001 W1-1 5/24/04	86-S1-002 W1-1 (DUP) 5/24/04	86-S1-003 W1-15 5/24/04	86-S1-004 W1-19 5/25/04	86-S1-006 W1-14 5/25/04	86-S1-007 W1-14 (DUP) 5/25/04	86-S1-008 W1-12R 5/25/04	86-S1-009 W1-22 5/26/04	86-S1-010 W1-5 5/26/04	86-S1-011 W1-8 5/26/04	86-S1-012 W1-24 5/26/04	86-S1-013 W1-16 5/26/04
1,3,5-Trimethylbenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U
2-Chlorotoluene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
4-Chlorotoluene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Acetone	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	2.9 J	10 U	10 U	2.8 J	10 U
Benzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U
Bromomethane	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Carbon disulfide	0.5 U	0.5 U	0.24 J	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U
Chloroform	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U	1 U
Ethylbenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 U	2 U	2 U	2 U

**TABLE B-2**  
**MAY 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-001 W1-1 5/24/04	86-S1-002 W1-1 (DUP) 5/24/04	86-S1-003 W1-15 5/24/04	86-S1-004 W1-19 5/25/04	86-S1-006 W1-14 5/25/04	86-S1-007 W1-14 (DUP) 5/25/04	86-S1-008 W1-12R 5/25/04	86-S1-009 W1-22 5/26/04	86-S1-010 W1-5 5/26/04	86-S1-011 W1-8 5/26/04	86-S1-012 W1-24 5/26/04	86-S1-013 W1-16 5/26/04
m,p-Xylene	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U
Naphthalene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.54	0.71	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U
Vinyl chloride	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U	1 U
<b>PCBs (µg/L) EPA Method 8082</b>												
Aroclor-1016	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1221	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1232	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1242	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1248	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1254	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1260	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
<b>Pesticides (µg/L) EPA Method 8081A</b>												
4,4'-DDD	0.094 U	0.094 U	0.094 U	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 UJ	0.094 UJ	0.094 UJ
4,4'-DDE	0.094 U	0.094 U	0.094 U	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 UJ	0.094 UJ	0.094 UJ
4,4'-DDT	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Aldrin	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
alpha-BHC	0.047 U	0.047 U	0.061	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
alpha-Chlordane	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
beta-BHC	0.047 U	0.047 U	0.38	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
delta-BHC	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 UJ	0.047 U	0.047 U	0.047 U

**TABLE B-2**  
**MAY 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-001 W1-1 5/24/04	86-S1-002 W1-1 (DUP) 5/24/04	86-S1-003 W1-15 5/24/04	86-S1-004 W1-19 5/25/04	86-S1-006 W1-14 5/25/04	86-S1-007 W1-14 (DUP) 5/25/04	86-S1-008 W1-12R 5/25/04	86-S1-009 W1-22 5/26/04	86-S1-010 W1-5 5/26/04	86-S1-011 W1-8 5/26/04	86-S1-012 W1-24 5/26/04	86-S1-013 W1-16 5/26/04
Dieldrin	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Endosulfan I	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Endosulfan II	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endosulfan sulfate	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endrin	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endrin aldehyde	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endrin ketone	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
gamma-BHC (Lindane)	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
gamma-Chlordane	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.053	0.047 U	0.047 U	0.047 U	0.047 U
Heptachlor	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Heptachlor epoxide	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Methoxychlor	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U
Toxaphene	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
<b>SVOCs (µg/L) EPA Method 8270C</b>												
1,1'-Biphenyl	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,2'-Oxybis(1-chloropropane)	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dimethylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dinitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,4-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,6-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Chloronaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylnaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Nitroaniline	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Nitrophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3,3'-Dichlorobenzidine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3/4-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4,6-Dinitro-2-methylphenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U



**TABLE B-2**  
**MAY 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-001 W1-1 5/24/04	86-S1-002 W1-1 (DUP) 5/24/04	86-S1-003 W1-15 5/24/04	86-S1-004 W1-19 5/25/04	86-S1-006 W1-14 5/25/04	86-S1-007 W1-14 (DUP) 5/25/04	86-S1-008 W1-12R 5/25/04	86-S1-009 W1-22 5/26/04	86-S1-010 W1-5 5/26/04	86-S1-011 W1-8 5/26/04	86-S1-012 W1-24 5/26/04	86-S1-013 W1-16 5/26/04
4-Bromophenyl-phenylether	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Chloro-3-methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenyl-phenylether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Acenaphthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acenaphthylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acetophenone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Atrazine	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Benzaldehyde	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(b)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(g,h,i)perylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(k)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethoxy)methane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethyl)ether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Ethylhexyl)phthalate	19 U	42	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Butylbenzylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	9.4 U	6.2 J	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Butylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Octylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenz(a,h)anthracene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Dibenzofuran	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Diethylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dimethylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorobenzene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U

**TABLE B-2**  
**MAY 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-001 W1-1 5/24/04	86-S1-002 W1-1 (DUP) 5/24/04	86-S1-003 W1-15 5/24/04	86-S1-004 W1-19 5/25/04	86-S1-006 W1-14 5/25/04	86-S1-007 W1-14 (DUP) 5/25/04	86-S1-008 W1-12R 5/25/04	86-S1-009 W1-22 5/26/04	86-S1-010 W1-5 5/26/04	86-S1-011 W1-8 5/26/04	86-S1-012 W1-24 5/26/04	86-S1-013 W1-16 5/26/04
Hexachlorocyclopentadiene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachloroethane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno(1,2,3-cd)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitroso-di-n-propylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitrosodiphenylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pentachlorophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenanthrene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1.

<sup>b</sup> – Duplicate sample was re-run at the request of the project chemist. All re-run values were less than the CCL, but are not reported because all of the appropriate laboratory QC documentation was not completed.

Shading indicates concentration above the calculated concentration limit.

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

BHC – benzenehexachloride

CCL – calculated concentration limit

COC – constituent of concern

DDD – dichlorodiphenyl dichloroethane

DDE – dichlorodiphenyl trichloroethylene

DDT – dichlorodiphenyl trichloroethane

DUP – duplicate sample

EPA – United States Environmental Protection Agency

J – estimated value

NAS – Naval Air Station

PCB – polychlorinated biphenyl

QC – quality control

SVOC – semivolatile organic compound

U – analyte not detected above project reporting limit

UJ – analyte not detected above the estimated reporting limit

VOC – volatile organic compound

**TABLE B-3**  
**NOVEMBER 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-056 W1-1R 11/8/04	86-S1-057 W1-15 11/8/04	86-S1-058 W1-19 11/8/04	86-S1-060 W1-14 11/8/04	86-S1-061 W1-12R 11/9/04	86-S1-062 W1-22 <sup>a</sup> 11/9/04	86-S1-063 W1-5 11/9/04	86-S1-064 W1-5 (DUP) 11/9/04	86-S1-065 W1-8 11/10/04	86-S1-066 W1-8 (DUP) 11/10/04	86-S1-067 W1-24 11/10/04	86-S1-068 W1-16 11/10/04
<b><i>Dissolved Metals (µg/L) EPA Method 200.8</i></b>												
Aluminum	50 U	50 U	50 U	50 U	50 U	50.2	50 U	50 U	50 U	50 U	50 U	50 U
Antimony	4.22	4.89	4.82 J	4.49	4.94	1.94 U	2.2 U	2.81 UJ	3.4 U	3.65 UJ	2.72 U	1.64 U
Arsenic	5.75 J	7.96 J	2.82 J	7.53 J	3.31 J	2.2 J	1.74 J	1.79 J	3.81 J	3.88 J	11.5 J	4.91 J
Barium	111	126	81.3 J	147	60.5	1160	481	477 J	149	141 J	250	417
Beryllium	0.005 J	0.015 J	0.003 J	0.007 J	0.005 J	0.022 J	0.005 J	0.004 J	0.004 J	0.008 J	0.015 J	0.009 J
Cadmium	0.003 J	0.006 U	0.421 J	0.014 J	0.041	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.005 J	0.006 J
Chromium	0.25 J	0.51 J	0.17 J	0.44 J	0.26 J	6.19 J	0.64 J	0.62 J	0.73 J	0.63 J	1.65 J	0.63 J
Cobalt	8.68 J	4.36 J	11 J	6.09 J	3.28 J	0.101 J	0.727 J	1.15 J	0.775 J	1.28 J	1.98 J	5.93 J
Copper	0.3 J	0.13 J	0.38 J	0.23 J	0.24 J	0.37 J	0.11 J	0.15 J	0.14 J	0.16 J	0.17 J	0.17 J
Lead	0.017 J	0.018 U	0.039 J	0.145	0.012 J	0.213	0.009 J	0.009 U	0.143	0.009 U	0.021	0.009 U
Nickel	19.2	7.6	12.7 J	7.6	8.35	21.3	4.04	4.08 J	4.24	4.1 J	10.2	11.7
Selenium	0.7 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Silver	0.092	0.01 U	0.011 J	0.012 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Thallium	0.037	0.001 U	0.062 J	0.001 U	0.05	0.001 J	0.007 J	0.001 J	0.001 U	0.001 U	0.002 J	0.001 U
Vanadium	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Zinc	4.17 J	22.7 J	37.4 J	29.5 J	68.6 J	1320 J	0.79 J	0.5 J	4.92 J	3.2 J	2.22 J	0.42 J
<b><i>Dissolved Metals (µg/L) EPA Method 7470A</i></b>												
Mercury	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ
<b><i>VOCs (µg/L) EPA Method 8260B</i></b>												
1,1,1,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**TABLE B-3**  
**NOVEMBER 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-056 W1-1R 11/8/04	86-S1-057 W1-15 11/8/04	86-S1-058 W1-19 11/8/04	86-S1-060 W1-14 11/8/04	86-S1-061 W1-12R 11/9/04	86-S1-062 W1-22 <sup>a</sup> 11/9/04	86-S1-063 W1-5 11/9/04	86-S1-064 W1-5 (DUP) 11/9/04	86-S1-065 W1-8 11/10/04	86-S1-066 W1-8 (DUP) 11/10/04	86-S1-067 W1-24 11/10/04	86-S1-068 W1-16 11/10/04
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorotoluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorotoluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	50 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 UJ	0.23 J	0.5 UJ	0.23 J	0.5 UJ	0.5 UJ
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Isopropylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**TABLE B-3**  
**NOVEMBER 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-056 W1-1R 11/8/04	86-S1-057 W1-15 11/8/04	86-S1-058 W1-19 11/8/04	86-S1-060 W1-14 11/8/04	86-S1-061 W1-12R 11/9/04	86-S1-062 W1-22 <sup>a</sup> 11/9/04	86-S1-063 W1-5 11/9/04	86-S1-064 W1-5 (DUP) 11/9/04	86-S1-065 W1-8 11/10/04	86-S1-066 W1-8 (DUP) 11/10/04	86-S1-067 W1-24 11/10/04	86-S1-068 W1-16 11/10/04
Methylene chloride	2 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U
m,p-Xylene	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	2.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
<b>PCBs (µg/L) EPA Method 8082</b>												
Aroclor-1016	0.94 UJ	0.94 UJ	0.94 UJ	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1221	0.94 UJ	0.94 UJ	0.94 UJ	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1232	0.94 UJ	0.94 UJ	0.94 UJ	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1242	0.94 UJ	0.94 UJ	0.94 UJ	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1248	0.94 UJ	0.94 UJ	0.94 UJ	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1254	0.94 UJ	0.94 UJ	0.94 UJ	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
Aroclor-1260	0.94 UJ	0.94 UJ	0.94 UJ	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
<b>Pesticides (µg/L) EPA Method 8081A</b>												
4,4'-DDD	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
4,4'-DDE	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
4,4'-DDT	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Aldrin	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
alpha-BHC	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.011 J	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
alpha-Chlordane	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
beta-BHC	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.14	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U

**TABLE B-3**  
**NOVEMBER 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-056 W1-1R 11/8/04	86-S1-057 W1-15 11/8/04	86-S1-058 W1-19 11/8/04	86-S1-060 W1-14 11/8/04	86-S1-061 W1-12R 11/9/04	86-S1-062 W1-22 <sup>a</sup> 11/9/04	86-S1-063 W1-5 11/9/04	86-S1-064 W1-5 (DUP) 11/9/04	86-S1-065 W1-8 11/10/04	86-S1-066 W1-8 (DUP) 11/10/04	86-S1-067 W1-24 11/10/04	86-S1-068 W1-16 11/10/04
delta-BHC	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.029 J	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Dieldrin	0.19 UJ	0.19 UJ	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Endosulfan I	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Endosulfan II	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endosulfan sulfate	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endrin	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U	0.032 J	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endrin aldehyde	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
Endrin ketone	0.094 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
gamma-BHC (Lindane)	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
gamma-Chlordane	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Heptachlor	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Heptachlor epoxide	0.047 UJ	0.047 UJ	0.047 UJ	0.047 U	0.047 U	0.034 J	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Methoxychlor	0.47 UJ	0.47 UJ	0.47 UJ	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U
Toxaphene	2.8 UJ	2.8 UJ	2.8 UJ	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
<b>SVOCs ( µg/L) EPA Method 8270C</b>												
1,1'-Biphenyl	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,2'-Oxybis(1-chloropropane)	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dimethylphenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dinitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,4-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,6-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Chloronaphthalene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chlorophenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylnaphthalene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylphenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Nitroaniline	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Nitrophenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3,3'-Dichlorobenzidine	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3/4-Methylphenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3-Nitroaniline	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

**TABLE B-3**  
**NOVEMBER 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-056 W1-1R 11/8/04	86-S1-057 W1-15 11/8/04	86-S1-058 W1-19 11/8/04	86-S1-060 W1-14 11/8/04	86-S1-061 W1-12R 11/9/04	86-S1-062 W1-22 <sup>a</sup> 11/9/04	86-S1-063 W1-5 11/9/04	86-S1-064 W1-5 (DUP) 11/9/04	86-S1-065 W1-8 11/10/04	86-S1-066 W1-8 (DUP) 11/10/04	86-S1-067 W1-24 11/10/04	86-S1-068 W1-16 11/10/04
4,6-Dinitro-2-methylphenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Bromophenyl-phenylether	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Chloro-3-methylphenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloroaniline	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenyl-phenylether	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitroaniline	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Acenaphthene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acenaphthylene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acetophenone	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Anthracene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Atrazine	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Benzaldehyde	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)anthracene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)pyrene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(b)fluoranthene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(g,h,i)perylene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(k)fluoranthene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethoxy)methane	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethyl)ether	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Ethylhexyl)phthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Butylbenzylphthalate	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzo(a,h)anthracene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzofuran	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Diethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Dimethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
di-n-Butylphthalate	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Octylphthalate	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluoranthene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

**TABLE B-3**  
**NOVEMBER 2004 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-056 W1-1R 11/8/04	86-S1-057 W1-15 11/8/04	86-S1-058 W1-19 11/8/04	86-S1-060 W1-14 11/8/04	86-S1-061 W1-12R 11/9/04	86-S1-062 W1-22 <sup>a</sup> 11/9/04	86-S1-063 W1-5 11/9/04	86-S1-064 W1-5 (DUP) 11/9/04	86-S1-065 W1-8 11/10/04	86-S1-066 W1-8 (DUP) 11/10/04	86-S1-067 W1-24 11/10/04	86-S1-068 W1-16 11/10/04
Hexachlorobenzene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Hexachlorocyclopentadiene	9.4 UJ	9.4 UJ	9.4 UJ	9.5 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ
Hexachloroethane	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno(1,2,3-cd)pyrene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorone	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitroso-di-n-propylamine	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitrosodiphenylamine	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pentachlorophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenanthrene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenol	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

**Notes:**

Shading indicates concentration above the calculated concentration limit.

<sup>a</sup> – Well W1-22 is a collection trench well and not representative of groundwater at Site 1

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

BHC – benzene hexachloride

COC – constituent of concern

DDD – dichlorodiphenyl dichloroethane

DDE – dichlorodiphenyl trichloroethylene

DDT – dichlorodiphenyl trichloroethane

DUP – duplicate sample

EPA – Environmental Protection Agency

J – estimated value

NAS – Naval Air Station

PCB – polychlorinated biphenyl

SVOC – semivolatile organic compound

U – analyte not detected above project reporting limit

UJ – analyte not detected above the estimated reporting limit

VOC – volatile organic compound



## **SUPPLEMENTAL SAMPLING**

TABLE B-4

**JULY 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	86-S1-017 W1-1 7/7/04	86-S1-018 W1-15 7/7/04	86-S1-019 W1-15 (DUP) 7/7/04	86-S1-020 W1-19 7/7/04	86-S1-022 W1-14 7/6/04	86-S1-023 W1-14 (DUP) 7/6/04	86-S1-024 W1-12R 7/6/04	86-S1-025 W1-22 <sup>a</sup> 7/6/04	86-S1-026 W1-5 7/6/04	86-S1-027 W1-8 7/6/04	86-S1-028 W1-24 7/6/04	86-S1-029 W1-16 7/6/04
<b>Dissolved Metals (<math>\mu\text{g/L}</math>) EPA Method 7470A</b>												
Mercury	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
<b>SVOCs (<math>\mu\text{g/L}</math>) EPA Method 8270C</b>												
1,1'-Biphenyl	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,2'-Oxybis(1-chloropropane)	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dimethylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dinitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,4-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,6-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Chloronaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylnaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Nitroaniline	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Nitrophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3,3'-Dichlorobenzidine	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3/4-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4,6-Dinitro-2-methylphenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Bromophenyl-phenylether	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Chloro-3-methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenyl-phenylether	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Acenaphthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acenaphthylene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acetophenone	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Atrazine	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U

TABLE B-4

**JULY 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	86-S1-001 W1-1 5/24/04	86-S1-002 W1-1 (DUP) 5/24/04	86-S1-003 W1-15 5/24/04	86-S1-004 W1-19 5/25/04	86-S1-006 W1-14 5/25/04	86-S1-007 W1-14 (DUP) 5/25/04	86-S1-008 W1-12R 5/25/04	86-S1-009 W1-22 5/26/04	86-S1-010 W1-5 5/26/04	86-S1-011 W1-8 5/26/04	86-S1-012 W1-24 5/26/04	86-S1-013 W1-16 5/26/04
Benzaldehyde	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(b)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(g,h,i)perylene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(k)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethoxy)methane	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethyl)ether	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Ethylhexyl)phthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Butylbenzylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzo(a,h)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzofuran	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Diethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Dimethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
di-n-Butylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Octylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorobenzene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Hexachlorocyclopentadiene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachloroethane	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno(1,2,3-cd)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorone	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitroso-di-n-propylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitrosodiphenylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pentachlorophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenanthrene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

TABLE B-4

**JULY 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

DUP – duplicate sample

NAS – Naval Air Station

SVOC – semivolatile organic compound

U – analyte not detected above project reporting limit

TABLE B-5

**AUGUST 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	86-S1-030 W1-1R 8/19/04	86-S1-031 W1-15 8/18/04	86-S1-032 W1-19 8/18/04	86-S1-034 W1-14 8/18/04	86-S1-035 W1-12R 8/18/04	86-S1-036 W1-12R (DUP) 8/18/04	86-S1-037 W1-22 <sup>a</sup> 8/19/04	86-S1-038 W1-5 8/19/04	86-S1-039 W1-5 (DUP) 8/19/04	86-S1-040 W1-8 8/19/04	86-S1-041 W1-24 8/19/04	86-S1-042 W1-16 8/19/04
<b>Dissolved Metals (<math>\mu\text{g/L}</math>) EPA Method 7470A</b>												
Mercury	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U
<b>SVOCs (<math>\mu\text{g/L}</math>) EPA Method 8270C</b>												
1,1'-Biphenyl	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,2'-Oxybis(1-chloropropane)	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dimethylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dinitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,4-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,6-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Chloronaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylnaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Nitroaniline	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Nitrophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3,3'-Dichlorobenzidine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3/4-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4,6-Dinitro-2-methylphenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Bromophenyl-phenylether	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Chloro-3-methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenyl-phenylether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Acenaphthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acenaphthylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acetophenone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Atrazine	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U

TABLE B-5

**AUGUST 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	86-S1-030 W1-1 8/19/04	86-S1-031 W1-15 8/18/04	86-S1-032 W1-19 8/18/04	86-S1-034 W1-14 8/18/04	86-S1-035 W1-12 8/18/04	86-S1-036 W1-12 (DUP) 8/18/04	86-S1-037 W1-22a 8/19/04	86-S1-038 W1-5 8/19/04	86-S1-039 W1-5 (DUP) 8/19/04	86-S1-040 W1-8 8/19/04	86-S1-041 W1-24 8/19/04	86-S1-042 W1-16 8/19/04
Benzaldehyde	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(b)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(g,h,i)perylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(k)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethoxy)methane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethyl)ether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Ethylhexyl)phthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	750 U <sup>b</sup>	19 U	19 U	19 U
Butylbenzylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzo(a,h)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzofuran	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Diethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Dimethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
di-n-Butylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Octylphthalate	9.4 UJ	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ
Fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorobenzene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Hexachlorocyclopentadiene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachloroethane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno(1,2,3-cd)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitroso-di-n-propylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitrosodiphenylamine	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ
Pentachlorophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenanthrene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

TABLE B-5

**AUGUST 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1

<sup>b</sup> – The result for bis(2-Ethylhexyl)phthalate in well W1-5 (duplicate sample 86-S1-039) is a lab contaminant. The sample was reanalyzed out of holding time and found to be non-detect. In addition, the regular sample for well W1-5 (86-S1-038) was non-detect for bis(2-Ethylhexyl)phthalate. Well W1-5 is upgradient of the Site 1 Landfill.

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

COC – constituent of concern

DUP – duplicate sample

NAS – Naval Air Station

SVOC – semivolatile organic compound

U – analyte not detected above project reporting limit

UJ – analyte not detected above the estimated reporting limit

TABLE B-6

**SEPTEMBER 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	86-S1-043 W1-1R 9/27/04	86-S1-044 W1-15 9/27/04	86-S1-045 W1-19 9/27/04	86-S1-047 W1-14 9/27/04	86-S1-048 W1-12R 9/28/04	86-S1-049 W1-12R (DUP) 9/28/04	86-S1-050 W1-22 <sup>a</sup> 9/28/04	86-S1-051 W1-5 9/28/04	86-S1-052 W1-8 9/28/04	86-S1-053 W1-8 (DUP) 9/28/04	86-S1-054 W1-24 9/28/04	86-S1-055 W1-16 9/28/04
<b>Dissolved Metals (<math>\mu\text{g/L}</math>) EPA Method 7470A</b>												
Mercury	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
<b>SVOCs (<math>\mu\text{g/L}</math>) EPA Method 8270C</b>												
1,1'-Biphenyl	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2,2'-Oxybis(1-chloropropane)	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2,4,5-Trichlorophenol	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2,4,6-Trichlorophenol	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2,4-Dichlorophenol	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2,4-Dimethylphenol	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2,4-Dinitrophenol	20 U	19 U	20 U	20 U	19 U	19 UJ	19 U	19 U	19 U	19 U	19 U	20 U
2,4-Dinitrotoluene	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
2,6-Dinitrotoluene	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
2-Chloronaphthalene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2-Chlorophenol	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2-Methylnaphthalene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2-Methylphenol	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
2-Nitroaniline	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
2-Nitrophenol	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
3,3'-Dichlorobenzidine	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
3/4-Methylphenol	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
3-Nitroaniline	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
4,6-Dinitro-2-methylphenol	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
4-Bromophenyl-phenylether	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
4-Chloro-3-methylphenol	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
4-Chloroaniline	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
4-Chlorophenyl-phenylether	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
4-Nitroaniline	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
4-Nitrophenol	20 UJ	19 UJ	20 UJ	20 UJ	19 UJ	19 U	19 UJ	19 UJ	19 UJ	19 UJ	19 UJ	20 UJ
Acenaphthene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Acenaphthylene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Acetophenone	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Anthracene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Atrazine	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U



TABLE B-6

**SEPTEMBER 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	86-S1-043 W1-1R 9/27/04	86-S1-044 W1-15 9/27/04	86-S1-045 W1-19 9/27/04	86-S1-047 W1-14 9/27/04	86-S1-048 W1-12R 9/28/04	86-S1-049 W1-12R (DUP) 9/28/04	86-S1-050 W1-22 <sup>a</sup> 9/28/04	86-S1-051 W1-5 9/28/04	86-S1-052 W1-8 9/28/04	86-S1-053 W1-8 (DUP) 9/28/04	86-S1-054 W1-24 9/28/04	86-S1-055 W1-16 9/28/04
Benzaldehyde	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Benzo(a)anthracene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Benzo(a)pyrene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Benzo(b)fluoranthene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Benzo(g,h,i)perylene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Benzo(k)fluoranthene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
bis(2-Chloroethoxy)methane	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
bis(2-Chloroethyl)ether	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
bis(2-Ethylhexyl)phthalate	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
Butylbenzylphthalate	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Caprolactam	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Carbazole	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Chrysene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Dibenzo(a,h)anthracene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Dibenzofuran	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Diethylphthalate	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
Dimethylphthalate	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
di-n-Butylphthalate	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
di-n-Octylphthalate	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Fluoranthene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Fluorene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Hexachlorobenzene	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
Hexachlorocyclopentadiene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Hexachloroethane	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Indeno(1,2,3-cd)pyrene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Isophorone	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
Nitrobenzene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
n-Nitroso-di-n-propylamine	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U
n-Nitrosodiphenylamine	10 UJ	9.6 UJ	10 UJ	10 UJ	9.5 UJ	9.4 UJ	9.5 UJ	9.5 UJ	9.4 UJ	9.6 UJ	9.4 UJ	9.9 UJ
Pentachlorophenol	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
Phenanthrene	20 U	19 U	20 U	20 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	20 U
Phenol	10 UJ	9.6 UJ	10 UJ	10 UJ	9.5 UJ	9.4 U	9.5 UJ	9.5 UJ	9.4 UJ	9.6 UJ	9.4 UJ	9.9 UJ
Pyrene	10 U	9.6 U	10 U	10 U	9.5 U	9.4 U	9.5 U	9.5 U	9.4 U	9.6 U	9.4 U	9.9 U

TABLE B-6

**SEPTEMBER 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

COC – constituent of concern

DUP – duplicate sample

NAS – Naval Air Station

SVOC – semivolatile organic compound

U – analyte not detected above project reporting limit

UJ – analyte not detected above the estimated reporting limit

TABLE B-7

**DECEMBER 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	86-S1-071 W1-1R 12/13/04	86-S1-072 W1-15 12/13/04	86-S1-073 W1-19 12/13/04	86-S1-075 W1-14 12/13/04	86-S1-076 W1-12R 12/13/04	86-S1-077 W1-12R (DUP) 12/13/04	86-S1-078 W1-22 <sup>a</sup> 12/14/04	86-S1-079 W1-5 12/14/04	86-S1-080 W1-5 (DUP) 12/14/04	86-S1-081 W1-8 12/14/04	86-S1-082 W1-24 12/14/04	86-S1-083 W1-16 12/14/04
<b>Dissolved Metals (<math>\mu\text{g/L}</math>) EPA Method 7470A</b>												
Mercury	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
<b>SVOCs (<math>\mu\text{g/L}</math>) EPA Method 8270C</b>												
1,1'-Biphenyl	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,2'-Oxybis(1-chloropropane)	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dimethylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dinitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,4-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,6-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Chloronaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylnaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Nitroaniline	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Nitrophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3,3'-Dichlorobenzidine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3/4-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4,6-Dinitro-2-methylphenol	19 UJ	19 UJ	19 UJ	19 UJ	19 UJ	19 UJ	19 UJ	19 UJ	19 UJ	19 UJ	19 UJ	19 UJ
4-Bromophenyl-phenylether	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Chloro-3-methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenyl-phenylether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Acenaphthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acenaphthylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acetophenone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Atrazine	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U

TABLE B-7

**DECEMBER 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

COC	86-S1-071 W1-1R 12/13/04	86-S1-072 W1-15 12/13/04	86-S1-073 W1-19 12/13/04	86-S1-075 W1-14 12/13/04	86-S1-076 W1-12R 12/13/04	86-S1-077 W1-12R (DUP) 12/13/04	86-S1-078 W1-22 <sup>a</sup> 12/14/04	86-S1-079 W1-5 12/14/04	86-S1-080 W1-5 (DUP) 12/14/04	86-S1-081 W1-8 12/14/04	86-S1-082 W1-24 12/14/04	86-S1-083 W1-16 12/14/04
Benzaldehyde	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ
Benzo(a)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(b)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(g,h,i)perylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(k)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethoxy)methane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethyl)ether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Ethylhexyl)phthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Butylbenzylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzo(a,h)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzofuran	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Diethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Dimethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
di-n-Butylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Octylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorobenzene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Hexachlorocyclopentadiene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachloroethane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno(1,2,3-cd)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitroso-di-n-propylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitrosodiphenylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pentachlorophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenanthrene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

TABLE B-7

**DECEMBER 2004 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

COC – constituent of concern

DUP – duplicate sample

EPA – Environmental Protection Agency

NAS – Naval Air Station

SVOC – semivolatile organic compound

U – analyte not detected above project reporting limit

UJ – analyte not detected above the estimated reporting limit

## **STATISTICAL EVALUATION**

TABLE B-8

**SUMMARY - DISSOLVED METALS  
FORMER NAS MOFFETT FIELD  
MARCH 2004 MONITORING SUMMARY - DISSOLVED METALS**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	Qualifier	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
03/31/04	REG	W1-16	Downgrd.	Aluminum	3800 J		870	No	N/A	Yes	Exceeded CCL Location is downgradient well Monitor for exceedance in next two sampling rounds
03/30/04	REG	W1-5	Upgrad.	Barium	485		40	N/A	N/A	No	Location is a background well
03/30/04	REG	W1-8	Upgrad.	Barium	121 J		40	N/A	N/A	No	Location is a background well
03/30/04	FD	W1-8	Upgrad.	Barium	164 J		40	N/A	N/A	No	Location is a background well
03/29/04	REG	W1-12R	Upgrad.	Barium	75.8 J		40	N/A	N/A	No	Location is a background well
03/30/04	REG	W1-14	Downgrd.	Barium	145 J		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
03/29/04	REG	W1-15	Downgrd.	Barium	157 J		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
03/31/04	REG	W1-16	Downgrd.	Barium	384		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
03/30/04	REG	W1-19	Downgrd.	Barium	81.8 J		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
03/30/04	FD	W1-19	Downgrd.	Barium	83.4 J		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
03/29/04	REG	W1-1R	Downgrd.	Barium	66.6 J		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
03/31/04	REG	W1-24	Downgrd.	Barium	246		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
03/30/04	FD	W1-8	Upgrad.	Chromium	107 J		71.5	N/A	N/A	No	Location is a background well Sample is field duplicate; regular sample was non-detect (400 U)

TABLE B-8

**SUMMARY - DISSOLVED METALS  
FORMER NAS MOFFETT FIELD  
MAY 2004 MONITORING SUMMARY - DISSOLVED METALS**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	Qualifier	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
05/26/04	REG	W1-16	Downgrd.	Aluminum	50 U		870	N/A	N/A	Yes	No exceedance in this round Continue watch for one more round
05/26/04	REG	W1-5	Upgrad.	Barium	524		40	N/A	N/A	No	Location is a background well
05/26/04	REG	W1-8	Upgrad.	Barium	130		40	N/A	N/A	No	Location is a background well
05/25/04	REG	W1-12R	Upgrad.	Barium	78.2		40	N/A	N/A	No	Location is a background well
05/25/04	REG	W1-14	Downgrd.	Barium	152		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
05/25/04	FD	W1-14	Downgrd.	Barium	155 J		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
05/24/04	REG	W1-15	Downgrd.	Barium	181		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
05/26/04	REG	W1-16	Downgrd.	Barium	229 J		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
05/25/04	REG	W1-19	Downgrd.	Barium	86.6		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
05/24/04	REG	W1-1R	Downgrd.	Barium	71.5		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
05/24/04	FD	W1-1R	Downgrd.	Barium	72 J		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
05/26/04	REG	W1-24	Downgrd.	Barium	214		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
05/26/04	REG	W1-16	Downgrd.	Silver	0.239 J		0.22	Yes	W1-12 21.7 µg/L 7/12/99	No	Less than historical background



TABLE B-8

**SUMMARY - DISSOLVED METALS  
FORMER NAS MOFFETT FIELD  
NOVEMBER 2004 MONITORING SUMMARY - DISSOLVED METALS**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	Qualifier	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
11/10/04	REG	W1-16	Downgrd.	Aluminum	50	U	870	N/A	N/A	No	No exceedance in this round Second consecutive non-detect since exceedance Consider previous exceedance as false positive
11/09/04	REG	W1-5	Upgrad.	Barium	481		40	N/A	N/A	No	Exceeded CCL Location is a background well
11/10/04	REG	W1-8	Upgrad.	Barium	141	J	40	N/A	N/A	No	Exceeded CCL Location is a background well
11/09/04	REG	W1-12R	Upgrad.	Barium	60.5		40	N/A	N/A	No	Exceeded CCL Location is a background well
11/09/04	REG	W1-14	Downgrd.	Barium	147		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
11/08/04	REG	W1-15	Downgrd.	Barium	126		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
11/10/04	REG	W1-16	Downgrd.	Barium	417		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
11/08/04	REG	W1-19	Downgrd.	Barium	81.3	J	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
11/08/04	REG	W1-1R	Downgrd.	Barium	111		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
11/10/04	REG	W1-24	Downgrd.	Barium	250		40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background

**Abbreviations and Acronyms:**

µg/L - micrograms per liter

CCL - calculated concentration limit

Conc. - concentration

Downgrd. - downgradient

Exceed. - exceedance

J - estimated value

N/A - not applicable

NAS - Naval Air Station

U - analyte not detected above project reporting limit

Upgrad. - upgradient

**TABLE B-9**  
**SUMMARY - VOCs**  
**FORMER NAS MOFFETT FIELD**  
**MARCH 2004 MONITORING SUMMARY - VOCs**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	Qualifier	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
				No exceedances reported							

**TABLE B-9**

**SUMMARY - VOCs  
FORMER NAS MOFFETT FIELD  
MAY 2004 MONITORING SUMMARY - VOCs**

<b>Date</b>	<b>Sample Type</b>	<b>Well</b>	<b>Gradient</b>	<b>Analyte</b>	<b>Conc. (µg/L)</b>	<b>Qualifier</b>	<b>CCL (µg/L)</b>	<b>Less Than Historical Background</b>	<b>Maximum Historical Background</b>	<b>Track for 2 Out of 3 Exceed.</b>	<b>Comment</b>
05/24/04	REG	W1-15	Downgrd.	Carbon Disulfide	0.24 J		0.21	Yes	W1-12R 9.8 µg/L 01/16/01	No	Less than historical background

TABLE B-9

**SUMMARY - VOCs**  
**FORMER NAS MOFFETT FIELD**  
**NOVEMBER 2004 MONITORING SUMMARY - VOCs**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	Qualifier	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
11/09/04	FD	W1-5	Upgrad.	Carbon Disulfide	0.23	J	0.21	N/A	N/A	No	Location is a background well Sample is field duplicate; regular sample was non-detect (0.5 UJ)
11/10/04	FD	W1-8	Upgrad.	Carbon Disulfide	0.23	J	0.21	N/A	N/A	No	Location is a background well Sample is field duplicate; regular sample was non-detect (0.5 UJ)

**Abbreviations and Acronyms:**

µg/L - micrograms per liter

CCL - calculated concentration limit

Conc. - concentration

Downgrd. - downgradient

Exceed. - exceedance

J - estimated value

N/A - not applicable

NAS - Naval Air Station

UJ - analyte not detected above estimated reporting limit

VOC - volatile organic compound

TABLE B-10

**SUMMARY - SVOCs**  
**FORMER NAS MOFFETT FIELD**  
**MAY 2004 MONITORING SUMMARY - SVOCs**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	Qualifier	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
05/24/04	FD	W1-1R	Downgrd.	Caprolactam	6.2	J	5	No	N/A	Yes	Exceeded CCL Monitor next two sampling rounds Sample is field duplicate; regular sample was non-detect (9.4 U)
05/24/04	FD	W1-1R	Downgrd.	Bis(2-Ethylhexyl) Phthalate	42		30	No	N/A	Yes	Exceeded CCL Monitor next two sampling rounds Sample is field duplicate; regular sample was non-detect (19 U)

TABLE B-10

**SUMMARY - SVOCs**  
**FORMER NAS MOFFETT FIELD**  
**JULY 2004 MONITORING SUMMARY - SVOCs**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	Qualifier	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
07/07/04	REG	W1-1R	Downgrd.	Caprolactam	9.4	U	5	N/A	N/A	Yes	No exceedance in this round Continue to watch for one more round
07/07/04	REG	W1-1R	Downgrd.	Bis(2-Ethylhexyl) Phthalate	19	U	30	N/A	N/A	Yes	No exceedance in this round Continue to watch for one more round

TABLE B-10

**SUMMARY - SVOCs  
FORMER NAS MOFFETT FIELD  
AUGUST 2004 MONITORING SUMMARY - SVOCs**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	Qualifier	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
08/19/04	REG	W1-1R	Downgrd.	Caprolactam	9.4	U	5	N/A	N/A	No	No exceedance in this round Second consecutive non-detect since exceedance Consider previous exceedance as false positive
08/19/04	REG	W1-1R	Downgrd.	Bis(2-Ethylhexyl) Phthalate	19	U	30	N/A	N/A	No	No exceedance in this round Second consecutive non-detect since exceedance Consider previous exceedance as false positive

**Abbreviations and Acronyms:**

µg/L - micrograms per liter

CCL - calculated concentration limit

Conc. - concentration

Downgrd. - downgradient

Exceed. - exceedance

J - estimated value

N/A - not applicable

NAS - Naval Air Station

SVOC - semivolatile organic compound

U - analyte not detected above project reporting limit

**APPENDIX C**  
**ANALYTICAL DATA VALIDATION PACKAGES**  
**(Provided on CD only)**



## **REGULARLY SCHEDULED SAMPLING**

**MARCH 2004**

**Project Information  
Section  
Do not submit to  
Laboratory**

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0014548-I



LABORATORIES, INC.

1835 W. 205th Street  
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Date: 04-28-2004  
EMAX Batch No.: 04C211

Attn: Lisa Bienkowski

Tetra Tech FW, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, CTO 71, Site 1

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Enclosed is the Laboratory report for samples received on  
03/31/04. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
71-S1-030	C211-01	03/29/04	WATER	VOLATILE ORGANICS BY GC/MS
71-S1-017	C211-02	03/29/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-018	C211-03	03/29/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N

Sample ID	Control #	Col Date	Matrix	Analysis
71-S1-023	C211-04	03/29/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-024	C211-05	03/29/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-019	C211-06	03/30/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-020	C211-07	03/30/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-022	C211-08	03/30/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY

Sample ID	Control #	Col Date	Matrix	Analysis
71-S1-018MS	C211-03M	03/29/04	WATER	METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-018MSD	C211-03S	03/29/04	WATER	METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-018DUP	C211-03D	03/29/04	WATER	METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

*K. Y. Pang*

Kam Y. Pang, Ph.D.  
Laboratory Director

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, CTO 71, SITE 1  
**SDG:** 04C211

**SW 5030B/8260B**  
**VOLATILE ORGANICS BY GC/MS**

Eight (8) water samples were received on 03/31/04 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> edition.

1. Holding Time  
Analytical holding time was met.
2. Tuning and Calibration  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. Method Blank  
Method blank was free of contamination at the reporting limit.
4. Lab Control Sample/Lab Control Sample Duplicate  
All recoveries were within QC limits.
5. Surrogate Recovery  
Recoveries were within QC limits.
6. Matrix Spike/Matrix Spike Duplicate  
Sample C211-03 was spiked. All recoveries were within QC limit.
7. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 5030B/8260B  
 VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project      : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No.    : 04C211                  Date Extracted: 04/01/04 10:11
Sample ID    : 71-S1-030               Date Analyzed: 04/01/04 10:11
Lab Samp ID  : C211-01                  Dilution Factor: 1
Lab File ID  : RCB718                   Matrix: WATER
Ext Btch ID  : V003C68                  % Moisture: NA
Calib. Ref.  : RCB248                   Instrument ID: T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-ETHYLENEDIBROMIDE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.5
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.5
ACETONE	ND	10	.5
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	1	.5
ACRYLONITRILE	ND	10	.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	108	63-132
TOLUENE-D8	106	75-122
BROMOFLUOROBENZENE	108	73-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

2004



SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project      : MFA, CTO 71, SITE 1      Date Received: 03/31/04
Batch No.    : 04C211                  Date Extracted: 04/01/04 11:29
Sample ID    : 71-S1-017                Date Analyzed: 04/01/04 11:29
Lab Samp ID  : C211-02                  Dilution Factor: 1
Lab File ID  : RCB720                   Matrix: WATER
Ext Btch ID  : V003C68                  % Moisture: NA
Calib. Ref.  : RCB248                   Instrument ID: T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	1	3
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,2-ETHYLENEDIBROMIDE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	5
2-CHLOROTOLUENE	ND	10	5
2-HEXANONE	ND	10	5
4-CHLOROTOLUENE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5
ACETONE	ND	10	5
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	10	5
ACRYLONITRILE	ND	10	5
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	126	63-132	
TOLUENE-D8	96	75-122	
BROMOFLUOROBENZENE	98	73-129	

R.L. : Reporting Limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

2007

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client	: TETRA TECH FW, INC.	Date Collected	: 03/29/04
Project	: MFA, CTO 71, SITE 1	Date Received	: 03/31/04
Batch No.	: 04C211	Date Extracted	: 04/01/04 10:50
Sample ID	: 71-S1-018	Date Analyzed	: 04/01/04 10:50
Lab Samp ID	: C211-03	Dilution Factor	: 1
Lab File ID	: RCB719	Matrix	: WATER
Ext Btch ID	: V003C68	% Moisture	: NA
Calib. Ref.	: RCB248	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	3
1,1,1-TRICHLOROETHANE	ND	5	3
1,1,2,2-TETRACHLOROETHANE	ND	1	3
1,1,2-TRICHLOROETHANE	ND	5	3
1,1-DICHLOROETHANE	ND	5	3
1,1-DICHLOROETHENE	ND	5	3
1,1-DICHLOROPROPENE	ND	5	3
1,2,3-TRICHLOROBENZENE	ND	5	3
1,2,3-TRICHLOROPROPANE	ND	5	3
1,2,4-TRICHLOROBENZENE	ND	5	3
1,2,4-TRIMETHYLBENZENE	ND	5	3
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	3
1,2-DICHLOROBENZENE	ND	5	3
1,2-DICHLOROETHANE	ND	5	3
1,2-DICHLOROPROPANE	ND	5	3
1,2-ETHYLENEDIBROMIDE	ND	5	3
1,3,5-TRIMETHYLBENZENE	ND	5	3
1,3-DICHLOROBENZENE	ND	5	3
1,3-DICHLOROPROPANE	ND	5	3
1,4-DICHLOROBENZENE	ND	5	3
2,2-DICHLOROPROPANE	ND	5	3
2-BUTANONE	ND	10	3
2-CHLOROTOLUENE	ND	5	3
2-HEXANONE	ND	10	3
4-CHLOROTOLUENE	ND	5	3
4-METHYL-2-PENTANONE	ND	10	3
ACETONE	ND	10	3
BENZENE	ND	5	3
BROMOBENZENE	ND	5	3
BROMOCHLOROMETHANE	ND	5	3
BROMODICHLOROMETHANE	ND	5	3
BROMOFORM	ND	5	3
BROMOMETHANE	ND	1	3
CARBON DISULFIDE	21J	5	3
CARBON TETRACHLORIDE	ND	5	3
CHLOROBENZENE	ND	5	3
CHLOROETHANE	ND	1	3
CHLOROFORM	ND	5	3
CHLOROMETHANE	ND	1	3
CIS-1,2-DICHLOROETHENE	ND	5	3
CIS-1,3-DICHLOROPROPENE	ND	5	3
DIBROMOCHLOROMETHANE	ND	5	3
DIBROMOMETHANE	ND	5	3
DICHLORODIFLUOROMETHANE	ND	1	3
ETHYLBENZENE	ND	5	3
HEXACHLOROBUTADIENE	ND	5	3
ISOPROPYL BENZENE	ND	5	3
M/P-XYLENES	ND	1	3
METHYLENE CHLORIDE	ND	5	3
N-BUTYLBENZENE	ND	5	3
N-PROPYLBENZENE	ND	5	3
NAPHTHALENE	ND	5	3
O-XYLENE	ND	5	3
P-ISOPROPYLTOLUENE	ND	5	3
SEC-BUTYLBENZENE	ND	5	3
STYRENE	ND	5	3
TERT-BUTYLBENZENE	ND	5	3
TETRACHLOROETHYLENE	ND	5	3
TOLUENE	ND	5	3
TRANS-1,2-DICHLOROETHENE	ND	5	3
TRANS-1,3-DICHLOROPROPENE	ND	5	3
TRICHLOROETHENE	ND	5	3
TRICHLOROFLUOROMETHANE	ND	1	3
VINYL CHLORIDE	ND	1	3
ACRYLONITRILE	ND	10	3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	122	63-132
TOLUENE-D8	100	75-122
BROMOFLUOROBENZENE	101	73-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

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Client      : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project     : MFA CTO 71, SITE 1      Date Received: 03/31/04
Batch No.   : 04C211                  Date Extracted: 04/01/04 12:08
Sample ID   : 71-S1-023                Date Analyzed: 04/01/04 12:08
Lab Samp ID : C211-04                  Dilution Factor: 1
Lab File ID : RCB721                   Matrix: WATER
Ext Btch ID : V003C68                  % Moisture: NA
Calib. Ref. : RCB248                    Instrument ID : T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.1	.3
1,1,2-TRICHLOROETHANE	ND	.5	.3
1,1-DICHLOROETHANE	ND	.5	.3
1,1-DICHLOROETHENE	ND	.5	.3
1,1-DICHLOROPROPENE	ND	.5	.3
1,2,3-TRICHLOROBENZENE	ND	.5	.3
1,3,3-TRICHLOROPROPANE	ND	.5	.3
1,3,4-TRICHLOROBENZENE	ND	.5	.3
1,3,4-TRIMETHYLBENZENE	ND	.5	.3
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.3
1,2-DICHLOROBENZENE	ND	.5	.3
1,2-DICHLOROETHANE	ND	.5	.3
1,2-DICHLOROPROPANE	ND	.5	.3
1,2-ETHYLENEDIBROMIDE	ND	.5	.3
1,3,5-TRIMETHYLBENZENE	ND	.5	.3
1,3-DICHLOROBENZENE	ND	.5	.3
1,3-DICHLOROPROPANE	ND	.5	.3
1,4-DICHLOROBENZENE	ND	.5	.3
2,2-DICHLOROPROPANE	ND	.5	.3
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.1
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.1
ACETONE	ND	10	.2
BENZENE	ND	.5	.3
BROMOBENZENE	ND	.5	.3
BROMOCHLOROMETHANE	ND	.5	.3
BROMODICHLOROMETHANE	ND	.5	.3
BROMOFORM	ND	.5	.3
BROMOMETHANE	ND	.1	.3
CARBON DISULFIDE	ND	.5	.3
CARBON TETRACHLORIDE	ND	.5	.3
CHLOROBENZENE	ND	.5	.3
CHLOROETHANE	ND	.1	.3
CHLOROFORM	ND	.5	.3
CHLOROMETHANE	ND	.1	.3
CIS-1,2-DICHLOROETHENE	ND	.5	.3
CIS-1,3-DICHLOROPROPENE	ND	.5	.3
DIBROMOCHLOROMETHANE	ND	.5	.3
DIBROMOMETHANE	ND	.5	.3
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.3
HEXACHLOROBUTADIENE	ND	.5	.3
ISOPROPYL BENZENE	ND	.5	.3
M/P-XYLENES	ND	.1	.3
METHYLENE CHLORIDE	ND	.5	.3
N-BUTYLBENZENE	ND	.5	.3
N-PROPYLBENZENE	ND	.5	.3
NAPHTHALENE	ND	.5	.3
O-XYLENE	ND	.5	.3
P-ISOPROPYLTOLUENE	ND	.5	.3
SEC-BUTYLBENZENE	ND	.5	.3
STYRENE	ND	.5	.3
TERT-BUTYLBENZENE	ND	.5	.3
TETRACHLOROETHYLENE	ND	.5	.3
TOLUENE	ND	.5	.3
TRANS-1,2-DICHLOROETHENE	ND	.5	.3
TRANS-1,3-DICHLOROPROPENE	ND	.5	.3
TRICHLOROETHENE	ND	.5	.3
TRICHLOROFLUOROMETHANE	ND	.1	.3
VINYL CHLORIDE	ND	10	.5
ACRYLONITRILE	ND	10	.5
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	125	63-132	
TOLUENE-D8	95	75-122	
BROMOFLUOROBENZENE	99	73-129	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 03/29/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
Batch No. : 04C211	Date Extracted: 04/01/04 14:46
Sample ID: 71-S1-024	Date Analyzed: 04/01/04 14:46
Lab Samp ID: C211-05	Dilution Factor: 1
Lab File ID: RCB725	Matrix : WATER
Ext Btch ID: V003C68	% Moisture : NA
Calib. Ref.: RCB248	Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	10	2
1,1,1-TRICHLOROETHANE	ND	10	2
1,1,2,2-TETRACHLOROETHANE	ND	10	2
1,1,2-TRICHLOROETHANE	ND	10	2
1,1-DICHLOROETHANE	ND	10	2
1,1-DICHLOROETHENE	ND	10	2
1,1-DICHLOROPROPENE	ND	10	2
1,2,3-TRICHLOROBENZENE	ND	10	2
1,2,3-TRICHLOROPROPANE	ND	10	2
1,2,4-TRICHLOROBENZENE	ND	10	2
1,2,4-TRIMETHYLBENZENE	ND	10	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	10	2
1,2-DICHLOROBENZENE	ND	10	2
1,2-DICHLOROETHANE	ND	10	2
1,2-DICHLOROPROPANE	ND	10	2
1,2-ETHYLENEDIBROMIDE	ND	10	2
1,2,4-TRIMETHYLBENZENE	ND	10	2
1,3-DICHLOROBENZENE	ND	10	2
1,3-DICHLOROPROPANE	ND	10	2
1,4-DICHLOROBENZENE	ND	10	2
2,2-DICHLOROPROPANE	ND	10	2
2-BUTANONE	ND	10	2
2-CHLOROTOLUENE	ND	10	2
2-HEXANONE	ND	10	2
4-CHLOROTOLUENE	ND	10	2
4-METHYL-2-PENTANONE	ND	10	2
ACETONE	6J	10	2
BENZENE	ND	10	2
BROMOBENZENE	ND	10	2
BROMOCHLOROMETHANE	ND	10	2
BROMODICHLOROMETHANE	ND	10	2
BROMOFORM	ND	10	2
BROMOMETHANE	ND	10	2
CARBON DISULFIDE	ND	10	2
CARBON TETRACHLORIDE	ND	10	2
CHLOROBENZENE	ND	10	2
CHLOROETHANE	ND	10	2
CHLOROFORM	ND	10	2
CHLOROMETHANE	ND	10	2
CIS-1,2-DICHLOROETHENE	ND	10	2
CIS-1,3-DICHLOROPROPENE	ND	10	2
DIBROMOCHLOROMETHANE	ND	10	2
DIBROMOMETHANE	ND	10	2
DICHLORODIFLUOROMETHANE	ND	10	2
ETHYLBENZENE	ND	10	2
HEXACHLOROBUTADIENE	ND	10	2
ISOPROPYL BENZENE	ND	10	2
M/P-XYLENES	ND	10	2
METHYLENE CHLORIDE	ND	10	2
N-BUTYLBENZENE	ND	10	2
N-PROPYLBENZENE	ND	10	2
NAPHTHALENE	ND	10	2
O-XYLENE	ND	10	2
P-ISOPROPYLTOLUENE	ND	10	2
SEC-BUTYLBENZENE	ND	10	2
STYRENE	ND	10	2
TERT-BUTYLBENZENE	ND	10	2
TETRACHLOROETHYLENE	ND	10	2
TOLUENE	ND	10	2
TRANS-1,2-DICHLOROETHENE	ND	10	2
TRANS-1,3-DICHLOROPROPENE	ND	10	2
TRICHLOROETHENE	ND	10	2
TRICHLOROFLUOROMETHANE	ND	10	2
VINYL CHLORIDE	ND	10	2
ACRYLONITRILE	ND	10	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	120	63-132
TOLUENE-DB	101	75-122
BROMOFLUOROBENZENE	101	73-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

2017

SW 50308/8260B  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
Batch No. : 04C211	Date Extracted: 04/01/04 12:48
Sample ID: 71-51-019	Date Analyzed: 04/01/04 12:48
Lab Samp ID: C211-06	Dilution Factor: 1
Lab File ID: RCB722	Matrix : WATER
Ext Btch ID: V003C68	% Moisture : NA
Calib. Ref.: RCB248	Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-ETHYLENEDIBROMIDE	ND	.5	.2
1,2,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.5
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.5
ACETONE	ND	10	.5
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACRYLONITRILE	ND	10	.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	126	63-132
TOLUENE-D8	97	75-122
BROMOFLUOROBENZENE	97	73-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTD 71, SITE 1	Date Received: 03/31/04
Batch No. : 04C211	Date Extracted: 04/01/04 13:27
Sample ID: 71-S1-020	Date Analyzed: 04/01/04 13:27
Lab Samp ID: C211-07	Dilution Factor: 1
Lab File ID: RCB723	Matrix : WATER
Ext Btch ID: V003C68	% Moisture : NA
Calib. Ref: RCB248	Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	1
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,2-ETHYLENEDIBROMIDE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	2
2-CHLOROTOLUENE	ND	10	1
2-HEXANONE	ND	10	1
4-CHLOROTOLUENE	ND	10	2
4-METHYL-2-PENTANONE	ND	10	1
ACETONE	ND	10	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	10	2
ACRYLONITRILE	ND	10	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	128	63-132
TOLUENE-D8	100	75-122
BROMOFLUOROBENZENE	98	73-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

2024

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

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Client   : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project  : MFA, CTO 71, SITE 1      Date Received: 03/31/04
Batch No. : 04C211                  Date Extracted: 04/01/04 14:06
Sample ID: 71-S1-022                Date Analyzed: 04/01/04 14:06
Lab Samp ID: C211-08                 Dilution Factor: 1
Lab File ID: RC8724                  Matrix: WATER
Ext Btch ID: V003C68                 % Moisture: NA
Calib. Ref.: RC8248                  Instrument ID: T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.3
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-ETHYLENEDIBROMIDE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.1
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.1
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.1
ACETONE	ND	10	.1
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	1	.1
ACRYLONITRILE	ND	10	.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	127	63-132
TOLUENE-D8	107	75-123
BROMOFLUOROBENZENE	98	73-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

**CASE NARRATIVE****CLIENT: TETRA TECH FW, INC.****PROJECT: MFA, CTO 71, SITE 1****SDG: 04C211****SW3520C/8081A  
PESTICIDES**

Seven (7) water samples were received on 03/31/04 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample C211-03 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.



SW3520C/8081A  
 PESTICIDES

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Client   : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project  : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No. : 04C211                 Date Extracted: 04/01/04 17:00
Sample ID: 71-s1-017               Date Analyzed: 04/02/04 16:27
Lab Samp ID: C211-02               Dilution Factor: .94
Lab File ID: SD02011A              Matrix       : WATER
Ext Btch ID: CPD002W               % Moisture    : NA
Calib. Ref.: SD02003A              Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .029J	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.094	.019
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	70 (102)	20-145
DECACHLOROBIPHENYL	77 (81)	20-165

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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Client       : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project      : MFA, CTO 71, SITE 1      Date Received: 03/31/04
Batch No.    : 04C211                   Date Extracted: 04/01/04 17:00
Sample ID    : 71-S1-018                Date Analyzed: 04/02/04 16:52
Lab Samp ID  : C211-03                  Dilution Factor: .94
Lab File ID  : SD02012A                 Matrix       : WATER
Ext Btch ID  : CPD002W                  % Moisture    : NA
Calib. Ref.  : SD02003A                 Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.039J (ND)	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .064	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	.01J (ND)	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) .029J	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.094	.019
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	85 (94)	20-145	
DECACHLOROBIPHENYL	77 (82)	20-165	

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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Client      : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project     : MFA, CTD 71, SITE 1     Date Received: 03/31/04
Batch No.   : 04C211                  Date Extracted: 04/01/04 17:00
Sample ID   : 71-S1-023                Date Analyzed: 04/02/04 18:58
Lab Samp ID : C211-04                  Dilution Factor: 1
Lab File ID : SD02017A                 Matrix          : WATER
Ext Btch ID : CPD002W                  % Moisture       : NA
Calib. Ref. : SD02003A                 Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.05	.01   .01
GAMMA-BHC (LINDANE)	(ND)   ND	.05	.01   .01
BETA-BHC	(ND)   .028J	.05	.01   .01
HEPTACHLOR	.012J   (ND)	.05	.01   .01
DELTA-BHC	(ND)   ND	.05	.01   .01
ALDRIN	(ND)   ND	.05	.01   .01
HEPTACHLOR EPOXIDE	(ND)   ND	.05	.01   .01
GAMMA-CHLORDANE	(ND)   ND	.05	.01   .01
ALPHA-CHLORDANE	(ND)   ND	.05	.01   .01
ENDOSULFAN I	(ND)   ND	.05	.03   .03
4,4'-DDE	(ND)   ND	.1	.03   .03
DIELDRIN	(ND)   ND	.1	.02   .02
ENDRIN	(ND)   ND	.1	.02   .02
4,4'-DDD	(ND)   ND	.1	.03   .03
ENDOSULFAN II	(ND)   ND	.1	.02   .02
4,4'-DDT	(ND)   ND	.1	.02   .02
ENDRIN ALDEHYDE	(ND)   ND	.1	.02   .02
ENDOSULFAN SULFATE	(ND)   ND	.1	.02   .02
ENDRIN KETONE	(ND)   ND	.1	.02   .02
METHOXYCHLOR	(ND)   ND	.5	.1   .1
TOXAPHENE	(ND)   ND	3	1.2   1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(80)   80	20-145	
DECACHLOROBIPHENYL	76   (81)	20-165	

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project     : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No.   : 04C211                  Date Extracted: 04/01/04 17:00
Sample ID   : 71-S1-024               Date Analyzed: 04/02/04 19:24
Lab Samp ID : C211-05                  Dilution Factor: .94
Lab File ID : SD02018A                 Matrix          : WATER
Ext Btch ID : CPD002W                  % Moisture       : NA
Calib. Ref. : SD02003A                 Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.098 (.033J)	.047	.0094
GAMMA-BHC (LINDANE)	.024J (ND)	.047	.0094
BETA-BHC	(ND) .052	.047	.0094
HEPTACHLOR	.22 (ND)	.047	.0094
DELTA-BHC	(ND) .024J	.047	.0094
ALDRIN	.097 (ND)	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	.056 (ND)	.047	.0094
ALPHA-CHLORDANE	.018J (ND)	.047	.0094
ENDOSULFAN I	(ND) .038J	.047	.028
4,4'-DDE	.082J (ND)	.094	.028
DIELDRIN	.034J (.05J)	.094	.019
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(.039J) .029J	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	.21 (ND)	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	.034J (ND)	.094	.019
METHOXYCHLOR	.19J (ND)	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	182* (80)	20-145
DECACHLOROBIPHENYL	75 (155)	20-165

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project     : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No.   : 04C211                  Date Extracted: 04/01/04 17:00
Sample ID   : 71-S1-019               Date Analyzed: 04/02/04 19:49
Lab Samp ID : C211-06                  Dilution Factor: .94
Lab File ID : SD02019A                 Matrix          : WATER
Ext Btch ID : CPD002W                  % Moisture       : NA
Calib. Ref. : SD02003A                 Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.047	.0094   .0094
GAMMA-BHC (LINDANE)	(ND)   ND	.047	.0094   .0094
BETA-BHC	(ND)   .034J	.047	.0094   .0094
HEPTACHLOR	.01J   (.013J)	.047	.0094   .0094
DELTA-BHC	.016J   (ND)	.047	.0094   .0094
ALDRIN	(ND)   ND	.047	.0094   .0094
HEPTACHLOR EPOXIDE	(ND)   ND	.047	.0094   .0094
GAMMA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ALPHA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ENDOSULFAN I	(ND)   ND	.047	.028   .028
4,4'-DDE	(ND)   ND	.094	.028   .028
DIELDRIN	(ND)   ND	.094	.019   .019
ENDRIN	(ND)   ND	.094	.019   .019
4,4'-DDD	(ND)   ND	.094	.028   .028
ENDOSULFAN II	(ND)   ND	.094	.019   .019
4,4'-DDT	(ND)   ND	.094	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.094	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.094	.019   .019
ENDRIN KETONE	(ND)   ND	.094	.019   .019
METHOXYCHLOR	(ND)   ND	.47	.094   .094
TOXAPHENE	(ND)   ND	2.8	1.2   1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	66   (71)	20-145
DECACHLOROBIPHENYL	76   (80)	20-165

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project      : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No.    : 04C211                  Date Extracted: 04/01/04 17:00
Sample ID    : 71-S1-020               Date Analyzed: 04/02/04 20:14
Lab Samp ID  : C211-07                  Dilution Factor: .94
Lab File ID  : SD02020A                 Matrix          : WATER
Ext Btch ID  : CPD002W                  % Moisture       : NA
Calib. Ref.  : SD02003A                 Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.047	.0094   .0094
GAMMA-BHC (LINDANE)	(ND)   ND	.047	.0094   .0094
BETA-BHC	(ND)   .019J	.047	.0094   .0094
HEPTACHLOR	(ND)   ND	.047	.0094   .0094
DELTA-BHC	(ND)   ND	.047	.0094   .0094
ALDRIN	(ND)   ND	.047	.0094   .0094
HEPTACHLOR EPOXIDE	(ND)   ND	.047	.0094   .0094
GAMMA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ALPHA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ENDOSULFAN I	(ND)   ND	.047	.028   .028
4,4'-DDE	(ND)   ND	.094	.028   .028
DIELDRIN	(ND)   ND	.094	.019   .019
ENDRIN	(ND)   ND	.094	.019   .019
4,4'-DDD	(ND)   ND	.094	.028   .028
ENDOSULFAN II	(ND)   ND	.094	.019   .019
4,4'-DDT	(ND)   ND	.094	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.094	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.094	.019   .019
ENDRIN KETONE	(ND)   ND	.094	.019   .019
METHOXYCHLOR	(ND)   ND	.47	.094   .094
TOXAPHENE	(ND)   ND	2.8	1.2   1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	67   (76)	20-145
DECACHLOROBIPHENYL	76   (81)	20-165

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project     : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No.   : 04C211                  Date Extracted: 04/01/04 17:00
Sample ID   : 71-S1-022               Date Analyzed: 04/02/04 20:39
Lab Samp ID : C211-08                 Dilution Factor: .94
Lab File ID : SD02021A                Matrix          : WATER
Ext Btch ID : CPD002W                 % Moisture       : NA
Calib. Ref. : SD02003A                Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094 .0094
BETA-BHC	(ND) .035J	.047	.0094 .0094
HEPTACHLOR	(ND) ND	.047	.0094 .0094
DELTA-BHC	.016J (ND)	.047	.0094 .0094
ALDRIN	(ND) ND	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094 .0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094 .0094
ENDOSULFAN I	(ND) ND	.047	.028 .028
4,4'-DDE	(ND) ND	.094	.028 .028
DIELDRIN	(ND) ND	.094	.019 .019
ENDRIN	(ND) ND	.094	.019 .019
4,4'-DDD	(ND) ND	.094	.028 .028
ENDOSULFAN II	(ND) ND	.094	.019 .019
4,4'-DDT	(ND) ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.094	.019 .019
ENDRIN KETONE	(ND) ND	.094	.019 .019
METHOXYCHLOR	(ND) ND	.47	.094 .094
TOXAPHENE	(ND) ND	2.8	1.2 1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	97 (101)	20-145
DECACHLOROBIPHENYL	80 (84)	20-165

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

**CASE NARRATIVE****CLIENT: TETRA TECH FW, INC.****PROJECT: MFA, CTO 71, SITE 1****SDG: 04C211****SW3520C/8082  
PCBs**

Seven (7) water samples were received on 03/31/04 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was five-point for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 85-115%.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample C211-03 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.



SW3520C/8082  
PCBs

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project      : MFA, CTO 71, SITE 1      Date Received: 03/31/04
Batch No.    : 04C211                   Date Extracted: 04/01/04 17:00
Sample ID    : 71-S1-017                 Date Analyzed: 04/02/04 16:27
Lab Samp ID  : C211-02                   Dilution Factor: .94
Lab File ID  : SD02011A                  Matrix          : WATER
Ext Btch ID  : CPD002W                   % Moisture       : NA
Calib. Ref.: SD02006A                   Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	1.9	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(57) 69	20-145
DECACHLOROBIPHENYL	(100) 105	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
 PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project     : MFA, CTO 71, SITE 1      Date Received: 03/31/04
Batch No.   : 04C211                   Date Extracted: 04/01/04 17:00
Sample ID: 71-S1-018                   Date Analyzed: 04/02/04 16:52
Lab Samp ID: C211-03                    Dilution Factor: .94
Lab File ID: SD02012A                   Matrix      : WATER
Ext Btch ID: CPD002W                     % Moisture   : NA
Calib. Ref.: SD02006A                   Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	1.9	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(73)   115	20-145
DECACHLOROBIPHENYL	(105)   105	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project      : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No.    : 04C211                  Date Extracted: 04/01/04 17:00
Sample ID    : 71-S1-023               Date Analyzed: 04/02/04 18:58
Lab Samp ID  : C211-04                 Dilution Factor: 1
Lab File ID  : SD02017A                Matrix       : WATER
Ext Btch ID  : CPD002W                 % Moisture    : NA
Calib. Ref.  : SD02006A                Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	1	.25 .25
PCB-1221	(ND) ND	1	.25 .25
PCB-1232	(ND) ND	1	.25 .25
PCB-1242	(ND) ND	2	.25 .25
PCB-1248	(ND) ND	1	.25 .25
PCB-1254	(ND) ND	1	.25 .25
PCB-1260	(ND) ND	1	.25 .25

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(60) 75	20-145
DECACHLOROBIPHENYL	(103) 105	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
 PCBs

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 03/29/04
Project      : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No.    : 04C211                  Date Extracted: 04/01/04 17:00
Sample ID    : 71-S1-024               Date Analyzed: 04/02/04 19:24
Lab Samp ID  : C211-05                 Dilution Factor: .94
Lab File ID  : SD02018A                Matrix       : WATER
Ext Btch ID  : CPD002W                 % Moisture    : NA
Calib. Ref.  : SD02006A                Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	1.9	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(92) 74	20-145
DECACHLOROBIPHENYL	(81) 152	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project     : MFA, CTO 71, SITE 1      Date Received: 03/31/04
Batch No.   : 04C211                   Date Extracted: 04/01/04 17:00
Sample ID   : 71-S1-019                 Date Analyzed: 04/02/04 19:49
Lab Samp ID : C211-06                     Dilution Factor: .94
Lab File ID : SD02019A                   Matrix          : WATER
Ext Btch ID : CPD002W                     % Moisture       : NA
Calib. Ref. : SD02006A                   Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	1.9	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(54) 69	20-145
DECACHLOROBIPHENYL	(103) 103	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
 PCBs

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project      : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No.    : 04C211                  Date Extracted: 04/01/04 17:00
Sample ID    : 71-S1-020               Date Analyzed: 04/02/04 20:14
Lab Samp ID  : C211-07                 Dilution Factor: .94
Lab File ID  : SD02020A                Matrix          : WATER
Ext Btch ID  : CPD002W                 % Moisture       : NA
Calib. Ref.  : SD02006A                Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	1.9	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(55) 69	20-145
DECACHLOROBIPHENYL	(102) 104	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project     : MFA, CTO 71, SITE 1     Date Received: 03/31/04
Batch No.   : 04C211                  Date Extracted: 04/01/04 17:00
Sample ID   : 71-S1-022               Date Analyzed: 04/02/04 20:39
Lab Samp ID : C211-08                 Dilution Factor: .94
Lab File ID : SD02021A               Matrix      : WATER
Ext Btch ID : CPD002W                % Moisture   : NA
Calib. Ref. : SD02006A               Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	1.9	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(80) 97	20-145
DECACHLOROBIPHENYL	(108) 109	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, CTO 71, SITE 1  
**SDG:** 04C211

**METHOD 3010A/6010B**  
**TOTAL AND DISSOLVED METALS BY ICP**

Seven (7) water samples were received on 03/31/04 for Total and Dissolved Metals analysis by Method 3010A/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample C211-03 (Total and Dissolved) were analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Samples C211-03 (Total and Dissolved) were spiked. All recoveries were within QC limit except Manganese in MS/MSD of C211-03 (Dissolved) and Iron in MSD of C211-03 (Dissolved) were out the limit. All cations (Ca, K, Mg and Na) in both MS/MSD could not be evaluated since the parent samples concentration were relatively high (>4x) to spiking level.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

All samples were analyzed at DF20 for regular ICP and at DF10 for Trace ICP due to matrix interference from high sodium concentration.

**7001**



METHOD 3010A/6010B  
 METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/29/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-017	Date Analyzed: 04/13/04 20:49
Lab Samp ID: C211-02	Dilution Factor: 20
Lab File ID: I070023026	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I070023020	Instrument ID : EMAXI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.0696J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	503	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	ND	20	.6
Magnesium	1900	20	2
Manganese	5.95	2	.06
Nickel	ND	.4	.2
Potassium	493	100	20
Silver	ND	.4	.1
Sodium	14900	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client	: TETRA TECH FW, INC.	Date Collected:	03/29/04
Project	: MFA, CTO 71, SITE 1	Date Received:	03/31/04
SDG NO.	: 04C211	Date Extracted:	04/06/04 08:45
Sample ID:	71:S1-017	Date Analyzed:	04/26/04 12:14
Lab Samp ID:	C211-02	Dilution Factor:	10
Lab File ID:	I31D048026	Matrix	: WATER
Ext Btch ID:	IP0012W	% Moisture	: NA
Calib. Ref.:	I31D048020	Instrument ID	: EMAXT131

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	.0523J	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

METHOD 3010A/6010B  
 METALS BY ICP

Client	: TETRA TECH FW, INC.	Date Collected:	03/29/04
Project	: MFA, CTO 71, SITE 1	Date Received:	03/31/04
SDG NO.	: 04C211	Date Extracted:	04/06/04 08:45
Sample ID:	71-S1-018	Date Analyzed:	04/13/04 20:53
Lab Samp ID:	C211-03	Dilution Factor:	20
Lab File ID:	I07D023027	Matrix	: WATER
Ext Btch ID:	IPD012W	% Moisture	: NA
Calib. Ref.:	I07D023020	Instrument ID	: EMAXT107

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.148J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	541	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	20J	20	.6
Magnesium	1830	20	2
Manganese	1.97J	2	.06
Nickel	ND	.4	.2
Potassium	485	100	20
Silver	ND	.4	.1
Sodium	14000	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client	: TETRA TECH FW, INC.	Date Collected:	03/29/04
Project	: MFA, CTO 71, SITE 1	Date Received:	03/31/04
SDG NO.	: 04C211	Date Extracted:	04/06/04 08:45
Sample ID:	71-S1-018	Date Analyzed:	04/26/04 12:19
Lab Samp ID:	C211-03	Dilution Factor:	10
Lab File ID:	I31D048027	Matrix	: WATER
Ext Btch ID:	IPD012W	% Moisture	: NA
Calib. Ref.:	I31D048020	Instrument ID	: EMAXTI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

METHOD 3010A/6010B  
 METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/29/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-023	Date Analyzed: 04/14/04 12:31
Lab Samp ID: C211-04	Dilution Factor: 20
Lab File ID: I07D022035	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I07D022032	Instrument ID : EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.0808J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	605	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	2.28J	20	.6
Magnesium	1860	20	2
Manganese	6.52	2	.06
Nickel	.206J	.4	.2
Potassium	404	100	20
Silver	ND	.4	.1
Sodium	13900	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/29/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-SI-023	Date Analyzed: 04/26/04 12:54
Lab Samp ID: C211-04	Dilution Factor: 10
Lab File ID: I31D048034	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I31D048032	Instrument ID : EMAXT131

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

METHOD 3010A/6010B  
METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/29/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-024	Date Analyzed: 04/14/04 12:36
Lab Samp ID: C211-05	Dilution Factor: 20
Lab File ID: I07D022036	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I07D022032	Instrument ID : EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	1.323	4	1.2
Antimony	ND	2	.8
Barium	.311	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	747	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	20.1	20	.6
Magnesium	1100	20	2
Manganese	7.53	2	.06
Nickel	ND	.4	.2
Potassium	180	100	20
Silver	ND	.4	.1
Sodium	6100	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/29/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-024	Date Analyzed: 04/26/04 12:59
Lab Samp ID: C211-05	Dilution Factor: 10
Lab File ID: I31D048035	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I31D048032	Instrument ID : EMAXI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
-----	-----	-----	-----
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	.0629J	.1	.05

RL: Reporting Limit



METHOD 3010A/6010B  
 METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-019	Date Analyzed: 04/14/04 12:40
Lab Samp ID: C211-06	Dilution Factor: 20
Lab File ID: I07D022037	Matrix : WATER
Ext Btch ID: IP0012W	% Moisture : NA
Calib. Ref.: I07D022032	Instrument ID : EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	1.23J	4	1.2
Antimony	ND	2	.8
Barium	.081J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	550	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	3.01J	20	.6
Magnesium	1860	20	2
Manganese	4.27	2	.06
Nickel	ND	.4	.2
Potassium	455	100	20
Silver	ND	.4	.1
Sodium	13700	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-019	Date Analyzed: 04/26/04 13:03
Lab Samp ID: C211-06	Dilution Factor: 10
Lab File ID: I31D048036	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I31D048032	Instrument ID : EMAXTI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

METHOD 3010A/6010B  
 METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-020	Date Analyzed: 04/14/04 12:44
Lab Samp ID: C211-07	Dilution Factor: 20
Lab File ID: I07D022038	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I07D022032	Instrument ID : EMAXI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.0748J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	586	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	3.15J	20	.6
Magnesium	1990	20	2
Manganese	4.53	2	.06
Nickel	ND	.4	.2
Potassium	487	100	20
Silver	ND	.4	.1
Sodium	14500	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

7014

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-020	Date Analyzed: 04/26/04 13:09
Lab Samp ID: C211-07	Dilution Factor: 10
Lab File ID: I31D048037	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I31D048032	Instrument ID : EMAXI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

METHOD 3010A/6010B  
 METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-022	Date Analyzed: 04/14/04 12:49
Lab Samp ID: C211-08	Dilution Factor: 20
Lab File ID: I07D022039	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I07D022032	Instrument ID : EMAXI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.16J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	642	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	14.6J	20	.6
Magnesium	2120	20	2
Manganese	2.78	2	.06
Nickel	ND	.4	.2
Potassium	473	100	20
Silver	ND	.4	.1
Sodium	15000	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 03/31/04
SDG NO. : 04C211	Date Extracted: 04/06/04 08:45
Sample ID: 71-S1-022	Date Analyzed: 04/26/04 13:14
Lab Samp ID: C211-08	Dilution Factor: 10
Lab File ID: I31D048038	Matrix : WATER
Ext Btch ID: IPD012W	% Moisture : NA
Calib. Ref.: I31D048032	Instrument ID : EMAXTI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
-----	-----	-----	-----
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, CTO 71, SITE 1

**SDG:** 04C211

**METHOD 7470A**  
**TOTAL & DISSOLVED MERCURY BY COLD VAPOR**

Seven (7) water samples were received on 03/31/04 for Total and Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analysis met the holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within the control limits.

4. Serial Dilution/Post Analytical Spike

Sample C211-03 was analyzed for serial dilution. % Difference was not evaluated since diluted sample result was not detected. Analytical spike was performed and met the QC criteria were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample C211-03 was spiked. The recoveries were within the QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were analyzed with dilution factor of 10 matrix problem.

METHOD 7470A  
MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, CTO 71, SITE 1  
Batch No. : 04C211

Matrix : WATER  
Instrument ID : TI047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFTD	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGD018MB	ND	1	NA	.5	.25	04/20/0415:33	04/19/0416:00	M470017034	M470017032	HGD018W	NA	04/19/04
LCS1W	HGD018ML	5.07	1	NA	.5	.25	04/20/0415:35	04/19/0416:00	M470017035	M470017032	HGD018W	NA	04/19/04
LCS1W	HGD018MC	5.07	1	NA	.5	.25	04/20/0415:37	04/19/0416:00	M470017036	M470017032	HGD018W	NA	04/19/04
71-S1-018AS	C211-03A	170	10	NA	5	2.5	04/20/0415:39	04/19/0416:00	M470017037	M470017032	HGD018W	03/29/04	03/31/04
71-S1-018	C211-03	ND	10	NA	5	2.5	04/20/0415:41	04/19/0416:00	M470017038	M470017032	HGD018W	03/29/04	03/31/04
71-S1-018DL	C211-03T	ND	50	NA	25	12.5	04/20/0415:44	04/19/0416:00	M470017039	M470017032	HGD018W	03/29/04	03/31/04
71-S1-017	C211-02	ND	10	NA	5	2.5	04/20/0415:50	04/19/0416:00	M470017042	M470017032	HGD018W	03/29/04	03/31/04
71-S1-023	C211-04	ND	10	NA	5	2.5	04/20/0415:52	04/19/0416:00	M470017043	M470017032	HGD018W	03/29/04	03/31/04
71-S1-024	C211-05	ND	10	NA	5	2.5	04/20/0415:59	04/19/0416:00	M470017046	M470017044	HGD018W	03/29/04	03/31/04
71-S1-019	C211-06	ND	10	NA	5	2.5	04/20/0416:01	04/19/0416:00	M470017047	M470017044	HGD018W	03/30/04	03/31/04
71-S1-020	C211-07	ND	10	NA	5	2.5	04/20/0416:04	04/19/0416:00	M470017048	M470017044	HGD018W	03/30/04	03/31/04
71-S1-022	C211-08	ND	10	NA	5	2.5	04/20/0416:06	04/19/0416:00	M470017049	M470017044	HGD018W	03/30/04	03/31/04
71-S1-018MS	C211-03M	22.3	10	NA	5	2.5	04/20/0416:25	04/19/0416:00	M470017058	M470017056	HGD018W	03/29/04	03/31/04
71-S1-018MSD	C211-03S	21.5	10	NA	5	2.5	04/20/0416:28	04/19/0416:00	M470017059	M470017056	HGD018W	03/29/04	03/31/04

RL: Reporting Limit



**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, CTO 71, SITE 1

**SDG:** 04C211

**METHOD 353.3**  
**NITRATE/NITRITE-N**

Seven (7) water samples were received on 03/31/04 for Nitrate/Nitrite-N analysis by Method 353.3 in accordance with "Methods for Chemical Analysis of water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample C211-03 was analyzed for duplicate. %RPD was within QC limit.

5. Matrix Spike

Sample C211-03 was spiked. %Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 353.3  
NITRATE/NITRITE-N

Client : TETRA TECH FU, INC.  
Project : MFA, CTO 71, SITE 1  
Batch No. : 04C211

Matrix : WATER  
Instrument ID : 170

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	NAD001WB	ND	1	NA	.1	.02	04/09/0411:09	NA	NAD001W-10	NAD001W-07	NAD001W	NA	NA
LCS1W	NAD001WL	.520	1	NA	.1	.02	04/09/0411:10	NA	NAD001W-11	NAD001W-07	NAD001W	NA	NA
LCD1W	NAD001WC	.530	1	NA	.1	.02	04/09/0411:11	NA	NAD001W-12	NAD001W-07	NAD001W	NA	NA
71-S1-017	C211-02	.140	1	NA	.1	.02	04/09/0411:12	NA	NAD001W-13	NAD001W-07	NAD001W	03/29/04	03/31/04
71-S1-018	C211-03	ND	1	NA	.1	.02	04/09/0411:13	NA	NAD001W-14	NAD001W-07	NAD001W	03/29/04	03/31/04
71-S1-018DUP	C211-03D	ND	1	NA	.1	.02	04/09/0411:14	NA	NAD001W-15	NAD001W-07	NAD001W	03/29/04	03/31/04
71-S1-018MS	C211-03M	.527	1	NA	.1	.02	04/09/0411:15	NA	NAD001W-16	NAD001W-07	NAD001W	03/29/04	03/31/04
71-S1-023	C211-04	1.11	2	NA	.2	.04	04/09/0411:17	NA	NAD001W-18	NAD001W-07	NAD001W	03/29/04	03/31/04
71-S1-024	C211-05	.527	1	NA	.1	.02	04/09/0411:20	NA	NAD001W-21	NAD001W-19	NAD001W	03/29/04	03/31/04
71-S1-019	C211-06	ND	1	NA	.1	.02	04/09/0411:21	NA	NAD001W-22	NAD001W-19	NAD001W	03/30/04	03/31/04
71-S1-020	C211-07	ND	1	NA	.1	.02	04/09/0411:22	NA	NAD001W-23	NAD001W-19	NAD001W	03/30/04	03/31/04
71-S1-022	C211-08	.118	1	NA	.1	.02	04/09/0411:33	NA	NAD001W-34	NAD001W-31	NAD001W	03/30/04	03/31/04

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**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, CTO 71, SITE 1  
**SDG:** 04C211

**METHOD 415.1  
TOC**

Seven (7) water samples were received on 03/31/04 for TOC analysis by Method 415.1 in accordance with "Methods for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time  
Analysis met holding time criteria.
2. Method Blank  
Method blank was free of contamination at the reporting limit.
3. Lab Control Sample/Lab Control Sample Duplicate  
Lab control results were within QC limit.
4. Duplicate  
Sample C211-03 was analyzed for duplicate. %RPD was within QC limit.
5. Matrix Spike  
Sample C211-03 was spiked. %Recovery was within QC limit.
6. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1  
TOC

Client : TETRA TECH FW, INC.  
Project : MFA, CTO 71, SITE 1  
Batch No. : 04C211

Matrix : WATER  
Instrument ID : 162

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MELK1W	TC0002WB	ND	1	NA	5	1	04/12/0410:28	NA	TC0012-5	TC0012-2	TC0002W	NA	NA
LCS1W	TC0002WL	34.4	1	NA	5	1	04/12/0410:39	NA	TC0012-6	TC0012-2	TC0002W	NA	NA
LCD1W	TC0002WC	30.8	1	NA	5	1	04/12/0410:49	NA	TC0012-7	TC0012-2	TC0002W	NA	NA
71-S1-017	C211-02	6.07	1	NA	5	1	04/12/0413:36	NA	TC0012-23	TC0012-14	TC0002W	03/29/04	03/31/04
71-S1-018	C211-03	12.9	1	NA	5	1	04/12/0413:46	NA	TC0012-24	TC0012-14	TC0002W	03/29/04	03/31/04
71-S1-018DUP	C211-03D	12.9	1	NA	5	1	04/12/0413:56	NA	TC0012-25	TC0012-14	TC0002W	03/29/04	03/31/04
71-S1-018MS	C211-03M	35.8	1	NA	5	1	04/12/0414:27	NA	TC0012-28	TC0012-26	TC0002W	03/29/04	03/31/04
71-S1-023	C211-04	6.48	1	NA	5	1	04/12/0414:37	NA	TC0012-29	TC0012-26	TC0002W	03/29/04	03/31/04
71-S1-019	C211-06	9.41	1	NA	5	1	04/12/0414:58	NA	TC0012-31	TC0012-26	TC0002W	03/30/04	03/31/04
71-S1-020	C211-07	9.00	1	NA	5	1	04/12/0415:09	NA	TC0012-32	TC0012-26	TC0002W	03/30/04	03/31/04
71-S1-022	C211-08	11.8	1	NA	5	1	04/12/0415:19	NA	TC0012-33	TC0012-26	TC0002W	03/30/04	03/31/04
MELK2W	TC0004WB	ND	1	NA	5	1	04/13/0411:36	NA	TC0013-5	TC0013-2	TC0004W	NA	NA
LCS2W	TC0004WL	39.6	1	NA	5	1	04/13/0411:47	NA	TC0013-6	TC0013-2	TC0004W	NA	NA
LCD2W	TC0004WC	39.0	1	NA	5	1	04/13/0411:57	NA	TC0013-7	TC0013-2	TC0004W	NA	NA
71-S1-024	C211-05	95.3	2	NA	10	2	04/13/0412:40	NA	TC0013-11	TC0013-2	TC0004W	03/29/04	03/31/04

RL : Reporting Limit

8010

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, CTO 71  
**Collection Date:** March 29 through March 30, 2004  
**LDC Report Date:** May 5, 2004  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04C211

**Sample Identification**

71-S1-017  
71-S1-018  
71-S1-023  
71-S1-024  
71-S1-019  
71-S1-020  
71-S1-022  
71-S1-018MS  
71-S1-018DUP

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 353.3 for Nitrate/Nitrite as Nitrogen, and EPA Method 415.1 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration of each method were met.

### **b. Calibration Verification**

Calibration verification frequency and analysis criteria were met for each method when applicable.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## **IV. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **V. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Sample Result Verification**

Raw data were not reviewed for this SDG.

## **VIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## IX. Field Duplicates

Samples 71-S1-019 and 71-S1-020 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	71-S1-019	71-S1-020	
Total organic carbon	9.41	9.00	4

## X. Field Blanks

No field blanks were identified in this SDG.



**Moffett Air Field, CTO 71**

**Wet Chemistry - Data Qualification Summary - SDG 04C211**

No Sample Data Qualified in this SDG

**Moffett Air Field, CTO 71**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04C211**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 71  
**Collection Date:** March 29 through March 30, 2004  
**LDC Report Date:** May 5, 2004  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04C211

**Sample Identification**

71-S1-017  
71-S1-018  
71-S1-023  
71-S1-024  
71-S1-019  
71-S1-020  
71-S1-022  
71-S1-017F  
71-S1-018F  
71-S1-023F  
71-S1-024F  
71-S1-019F  
71-S1-020F  
71-S1-022F  
71-S1-018MS  
71-S1-018MSD  
71-S1-018FMS  
71-S1-018FMMSD

Sample IDs ending in "F" were analyzed for dissolved metals

## Introduction

This data review covers 18 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Potassium (20x)	1619 ug/L	71-S1-023 71-S1-024 71-S1-019 71-S1-020 71-S1-022
ICB/CCB	Thallium (10x)	5.40 ug/L	All samples in SDG 04C211

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
71-S1-024	Thallium	0.0629 mg/L	0.0629U mg/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
71-S1-018FMS/MSD (71-S1-017F 71-S1-018F 71-S1-023F 71-S1-024F 71-S1-019F 71-S1-020F 71-S1-022F)	Iron	-	68 (75-125)	-	J (all detects) UJ (all non-detects)	A
	Manganese	69 (75-125)	61 (75-125)	-	J (all detects) UJ (all non-detects)	

#### VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standards

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

#### X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verifications met validation criteria for samples.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 71-S1-019 and 71-S1-020 and samples 71-S1-019F and 71-S1-020F were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	71-S1-019	71-S1-020	
Aluminum	1.23	4U	Not calculable
Barium	0.081	0.0748	8
Calcium	550	586	6
Iron	3.01	3.15	5
Magnesium	1860	1990	7
Manganese	4.27	4.53	6
Potassium	455	487	7
Sodium	13700	14500	6

Analyte	Concentration (mg/Kg)		RPD
	71-S1-019F	71-S1-020F	
Barium	0.0818	0.0834	2
Calcium	603	573	5
Iron	3.26	3.16	3
Magnesium	2070	1970	5
Manganese	4.62	4.36	6

Analyte	Concentration (mg/Kg)		RPD
	71-S1-019F	71-S1-020F	
Potassium	500	457	9
Sodium	15400	14600	5

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 71****Metals - Data Qualification Summary - SDG 04C211**

SDG	Sample	Analyte	Flag	A or P	Reason
04C211	71-S1-017F 71-S1-018F 71-S1-023F 71-S1-024F 71-S1-019F 71-S1-020F 71-S1-022F	Iron  Manganese	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Airfield, CTO 71****Metals - Laboratory Blank Data Qualification Summary - SDG 04C211**

SDG	Sample	Analyte	Modified Final Concentration	A or P
04C211	71-S1-024	Thallium	0.0629U mg/L	A



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 71  
**Collection Date:** March 29, 2004  
**LDC Report Date:** May 7, 2004  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04C211

**Sample Identification**

71-S1-017  
71-S1-018  
71-S1-023  
71-S1-024  
71-S1-019  
71-S1-020  
71-S1-022  
71-S1-018MS  
71-S1-018MSD

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 71-S1-019 and 71-S1-020 were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 71**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 04C211**

No Sample Data Qualified in this SDG

**Moffett Airfield, CTO 71**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 04C211**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 71

**Collection Date:** March 29, 2004

**LDC Report Date:** May 10, 2004

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** EPA Level IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04C211

**Sample Identification**

71-S1-017

71-S1-018

71-S1-023

71-S1-024

71-S1-019

71-S1-020

71-S1-022

71-S1-018MS

71-S1-018MSD

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
4/2/04	SD02004A	RTX-CLPEST	Heptachlor 4,4'-DDD 4,4'-DDT Methoxychlor Endrin ketone	17 17 31 33 16	All samples in SDG 04C211	J (all detects) UJ (all non-detects)	A
4/2/04	SD02004A	RTX-CLPESTII	delta-BHC 4,4'-DDT Methoxychlor	18 17 17	All samples in SDG 04C211	J (all detects) UJ (all non-detects)	A

Retention times (RT) of all compounds in the calibration standards were within QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

The individual 4,4'-DDT and Endrin breakdowns were less than or equal to 15.0% .



## V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
71-S1-024	Channel A	Tetrachloro-m-xylene	182 (20-145)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Pesticide Cleanup Checks

### a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

### b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

## XI. Target Compound Identification

All target compound identifications were within validation criteria.

## XII. Compound Quantitation and Reported CRQLs

All compound quantitation and CRQLs were within validation criteria.

The sample results for detected compounds from the two columns were within 40.0% relative percent differences (RPD) with the following exceptions:

Sample	Compound	%RPD	Flag	A or P
71-S1-024	alpha-BHC	99	J (all detects)	A

### XIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

### XIV. Field Duplicates

Samples 71-S1-019 and 71-S1-020 were identified as field duplicates. No chlorinated pesticides were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	71-S1-019	71-S1-020	
Heptachlor	0.013	0.047U	Not calculable

### XV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 71****Chlorinated Pesticides - Data Qualification Summary - SDG 04C211**

SDG	Sample	Compound	Flag	A or P	Reason
04C211	71-S1-017 71-S1-018 71-S1-023 71-S1-024 71-S1-019 71-S1-020 71-S1-022	Heptachlor 4,4'-DDD 4,4'-DDT Methoxychlor Endrin ketone delta-BHC	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04C211	71-S1-024	All TCL compounds	J (all detects)	P	Surrogate spikes (%R)
04C211	71-S1-024	alpha-BHC	J (all detects)	A	Compound quantitation and CRQLs (%D)

**Moffett Airfield, CTO 71****Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 04C211**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, CTO 71  
**Collection Date:** March 29 through March 30, 2004  
**LDC Report Date:** May 10, 2004  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 04C211

**Sample Identification**

71-S1-030  
71-S1-017  
71-S1-018  
71-S1-023  
71-S1-024  
71-S1-019  
71-S1-020  
71-S1-022  
71-S1-018MS  
71-S1-018MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

For selected compounds the mean percent relative standard deviation (%RSD) was less than or equal to 15.0% and less than or equal to 30.0% for individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The mean percent difference (%D) between the initial calibration RRF and the continuing calibration RRF was less than or equal to 20.0% and less than or equal to 25.0% for individual compounds.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/1/04	Carbon disulfide	27.4	All samples in SDG 04C211	J (all detects) UJ (all non-detects)	A

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
71-S1-017	1,2-Dichloroethane-d4	126 (75-125)	All TCL compounds	J (all detects)	P
71-S1-019	1,2-Dichloroethane-d4	126 (75-125)	All TCL compounds	J (all detects)	P
71-S1-020	1,2-Dichloroethane-d4	128 (75-125)	All TCL compounds	J (all detects)	P
71-S1-022	1,2-Dichloroethane-d4	127 (75-125)	All TCL compounds	J (all detects)	P

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

All tentatively identified compounds were within validation criteria.

## **XIV. System Performance**

The system performance was within validation criteria.

## **XV. Overall Assessment of Data**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

Samples 71-S1-019 and 71-S1-020 were identified as field duplicates. No volatiles were detected in any of the samples.

## **XVII. Field Blanks**

Sample 71-S1-030 was identified as a trip blank. No volatile contaminants were found in this blank.



**Moffett Air Field, CTO 71****Volatiles - Data Qualification Summary - SDG 04C211**

SDG	Sample	Compound	Flag	A or P	Reason
04C211	71-S1-030 71-S1-017 71-S1-018 71-S1-023 71-S1-024 71-S1-019 71-S1-020 71-S1-022	Carbon disulfide	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04C211	71-S1-017 71-S1-019 71-S1-020 71-S1-022	All TCL compounds	J (all detects)	P	Surrogate spikes (%R)

**Moffett Air Field, CTO 71****Volatiles - Laboratory Blank Data Qualification Summary - SDG 04C211**

No Sample Data Qualified in this SDG

## CHAIN-OF-CUSTODY RECORD

[illegible]



LABORATORIES, INC.

1835 W. 205th Street

Torrance, CA 90501

Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 04-27-2004

EMAX Batch No.: 04D010

Attn: Lisa Bienkowski

Tetra Tech FW, Inc.

1940 E Deere Ave, Suite 200

Santa Ana CA 92705

Subject: Laboratory Report

Project: MFA, CTO 71, Site 1

-----  
Enclosed is the Laboratory report for samples received on  
04/01/04. The data reported include :

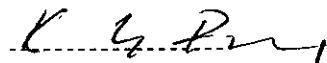
Sample ID	Control #	Col Date	Matrix	Analysis
71-S1-031	D010-01	03/30/04	WATER	VOLATILE ORGANICS BY GC/MS
71-S1-025	D010-02	03/30/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-026	D010-03	03/30/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N

Sample ID	Control #	Col Date	Matrix	Analysis
71-S1-027	D010-04	03/30/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-028	D010-05	03/31/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N
71-S1-029	D010-06	03/31/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS BY ICP MERCURY METALS DISSOLVED BY ICP MERCURY DISSOLVED TOTAL ORGANIC CARBON NITRATE/NITRITE-N

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.  
Laboratory Director

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, CTO 71, SITE 1  
**SDG:** 04D010

**SW 5030B/8260B**  
**VOLATILE ORGANICS BY GC/MS**

Six (6) water samples were received on 04/01/04 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> edition.

1. Holding Time

Samples D010-02 to -04 which were labeled as acid preserved but with pH=7, were analyzed couple of hours beyond the 7-days holding time for non-preserved samples.

2. Tuning and Calibration

Tuning and calibration were carried out at 12 hours interval. All QC requirements were met.

3. Method Blank

Method blanks were free of contamination at the reporting limit.

4. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

5. Surrogate Recovery

Recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All requirements were met with the aforementioned exception.



SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 03/30/04  
Project : MFA, CTO 71, SITE 1 Date Received: 04/01/04  
Batch No. : 040010 Date Extracted: 04/06/04 22:26  
Sample ID: 71-S1-031 Date Analyzed: 04/06/04 22:26  
Lab Samp ID: D010-01 Dilution Factor: 1  
Lab File ID: RDB087 Matrix : WATER  
Ext Btch ID: V003D07 % Moisture : NA  
Calib. Ref.: RCB248 Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	1	3
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,2-ETHYLENEDIBROMIDE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	10	2
4-CHLOROTOLUENE	ND	10	2
4-METHYL-2-PENTANONE	ND	10	2
ACETONE	ND	10	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	10	2
ACRYLONITRILE	ND	10	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	108	63-133
TOLUENE-D8	103	75-125
BROMOFLUOROBENZENE	100	73-129

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

2004

5/17/04

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
Batch No. : 040010	Date Extracted: 04/07/04 01:41
Sample ID: 71-S1-025	Date Analyzed: 04/07/04 01:41
Lab Samp ID: D010-02	Dilution Factor: 1
Lab File ID: RDB092	Matrix : WATER
Ext Btch ID: V003007	% Moisture : NA
Calib. Ref.: RCB248	Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1,2-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,2-ETHYLENEDIBROMIDE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	5
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	10	5
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	ND	10	5
ACETONE	ND	10	5
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	10	5
ACRYLONITRILE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	115	63-132
TOLUENE-D8	99	75-122
BROMOFLUOROBENZENE	97	73-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

5/17/04

2008

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
Batch No. : 040010	Date Extracted: 04/07/04 02:20
Sample ID: 71-S1-026	Date Analyzed: 04/07/04 02:20
Lab Samp ID: D010-03	Dilution Factor: 1
Lab File ID: RD8093	Matrix : WATER
Ext Btch ID: V003D07	% Moisture : NA
Calib. Ref.: RCB248	Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	5
1,1,1-TRICHLOROETHANE	ND	5	5
1,1,2,2-TETRACHLOROETHANE	ND	5	5
1,1,2-TRICHLOROETHANE	ND	5	5
1,1-DICHLOROETHANE	ND	5	5
1,1-DICHLOROETHENE	ND	5	5
1,1-DICHLOROPROPENE	ND	5	5
2,3-TRICHLOROBENZENE	ND	5	5
2,3-TRICHLOROPROPANE	ND	5	5
2,4-TRICHLOROBENZENE	ND	5	5
2,4-TRIMETHYLBENZENE	ND	5	5
2-DIBROMO-3-CHLOROPROPANE	ND	5	5
2-DICHLOROBENZENE	ND	5	5
2-DICHLOROETHANE	ND	5	5
2-DICHLOROPROPANE	ND	5	5
2-ETHYLENEDIBROMIDE	ND	5	5
3,5-TRIMETHYLBENZENE	ND	5	5
3-DICHLOROBENZENE	ND	5	5
3-DICHLOROPROPANE	ND	5	5
4-DICHLOROBENZENE	ND	5	5
2,2-DICHLOROPROPANE	ND	5	5
2-BUTANONE	ND	10	10
2-CHLOROTOLUENE	ND	10	10
2-HEXANONE	ND	10	10
4-CHLOROTOLUENE	ND	10	10
4-METHYL-2-PENTANONE	ND	10	10
ACETONE	ND	10	10
BENZENE	ND	10	10
BROMOBENZENE	ND	10	10
BROMOCHLOROMETHANE	ND	10	10
BROMODICHLOROMETHANE	ND	10	10
BROMOFORM	ND	10	10
BROMOMETHANE	ND	10	10
CARBON DISULFIDE	ND	10	10
CARBON TETRACHLORIDE	ND	10	10
CHLOROBENZENE	ND	10	10
CHLOROETHANE	ND	10	10
CHLOROFORM	ND	10	10
CHLOROMETHANE	ND	10	10
CIS-1,2-DICHLOROETHENE	ND	10	10
CIS-1,3-DICHLOROPROPENE	ND	10	10
DIBROMOCHLOROMETHANE	ND	10	10
DIBROMOMETHANE	ND	10	10
DICHLORODIFLUOROMETHANE	ND	10	10
ETHYLBENZENE	ND	10	10
HEXACHLOROBUTADIENE	ND	10	10
ISOPROPYL BENZENE	ND	10	10
M/P-XYLENES	ND	10	10
METHYLENE CHLORIDE	ND	10	10
N-BUTYLBENZENE	ND	10	10
N-PROPYLBENZENE	ND	10	10
NAPHTHALENE	ND	10	10
O-XYLENE	ND	10	10
P-ISOPROPYLTOLUENE	ND	10	10
SEC-BUTYLBENZENE	ND	10	10
STYRENE	ND	10	10
TERT-BUTYLBENZENE	ND	10	10
TETRACHLOROETHYLENE	ND	10	10
TOLUENE	ND	10	10
TRANS-1,2-DICHLOROETHENE	ND	10	10
TRANS-1,3-DICHLOROPROPENE	ND	10	10
TRICHLOROETHENE	ND	10	10
TRICHLOROFLUOROMETHANE	ND	10	10
VINYL CHLORIDE	ND	10	10
ACRYLONITRILE	ND	10	10

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	116	63-132
TOLUENE-D8	100	75-122
BROMOFLUOROBENZENE	97	75-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

5/17/04

2011



SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
Batch No. : 04D010	Date Extracted: 04/07/04 02:58
Sample ID: 71-S1-027	Date Analyzed: 04/07/04 02:58
Lab Samp ID: D010-04	Dilution Factor: 1
Lab File ID: RDB094	Matrix : WATER
Ext Btch ID: V003007	% Moisture : NA
Calib. Ref.: RC8248	Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,2-ETHYLENEDIBROMIDE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	2
2-CHLOROTOLUENE	ND	10	2
2-HEXANONE	ND	10	2
4-CHLOROTOLUENE	ND	10	2
4-METHYL-2-PENTANONE	ND	10	2
ACETONE	ND	10	2
BENZENE	ND	10	2
BROMOBENZENE	ND	10	2
BROMOCHLOROMETHANE	ND	10	2
BROMODICHLOROMETHANE	ND	10	2
BROMOFORM	ND	10	2
BROMOMETHANE	ND	10	2
CARBON DISULFIDE	ND	10	2
CARBON TETRACHLORIDE	ND	10	2
CHLOROBENZENE	ND	10	2
CHLOROETHANE	ND	10	2
CHLOROFORM	ND	10	2
CHLOROMETHANE	ND	10	2
CIS-1,2-DICHLOROETHENE	ND	10	2
CIS-1,3-DICHLOROPROPENE	ND	10	2
DIBROMOCHLOROMETHANE	ND	10	2
DIBROMOMETHANE	ND	10	2
DICHLORODIFLUOROMETHANE	ND	10	2
ETHYLBENZENE	ND	10	2
HEXACHLOROBUTADIENE	ND	10	2
ISOPROPYL BENZENE	ND	10	2
M/P-XYLENES	ND	10	2
METHYLENE CHLORIDE	ND	10	2
N-BUTYLBENZENE	ND	10	2
N-PROPYLBENZENE	ND	10	2
NAPHTHALENE	ND	10	2
O-XYLENE	ND	10	2
P-ISOPROPYLTOLUENE	ND	10	2
SEC-BUTYLBENZENE	ND	10	2
STYRENE	ND	10	2
TERT-BUTYLBENZENE	ND	10	2
TETRACHLOROETHYLENE	ND	10	2
TOLUENE	ND	10	2
TRANS-1,2-DICHLOROETHENE	ND	10	2
TRANS-1,3-DICHLOROPROPENE	ND	10	2
TRICHLOROETHENE	ND	10	2
TRICHLOROFLUOROMETHANE	ND	10	2
VINYL CHLORIDE	ND	10	2
ACRYLONITRILE	ND	10	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	116	63-132
TOLUENE-D8	99	75-122
BROMOFLUOROBENZENE	94	73-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

2014

 e  
 5/17/04

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 03/31/04
Project : MFA CTO 71, SITE 1	Date Received: 04/01/04
Batch No. : 040010	Date Extracted: 04/07/04 03:37
Sample ID: 71-S1-028	Date Analyzed: 04/07/04 03:37
Lab Samp ID: D010-05	Dilution Factor: 1
Lab File ID: RD8095	Matrix: WATER
Ext Btch ID: V003007	% Moisture: NA
Calib. Ref.: RCB248	Instrument ID: T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.3
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-ETHYLENEDIBROMIDE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	10	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	10	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLOROFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	10	.2
ACRYLONITRILE	ND	10	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	117	63-132
TOLUENE-D8	99	75-126
BROMOFLUOROBENZENE	95	73-129

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

*5/17/04*

2017

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 03/31/04  
Project : MFA CTO 71, SITE 1 Date Received: 04/01/04  
Batch No. : 04D010 Date Extracted: 04/07/04 12:45  
Sample ID: 71-S1-029 Date Analyzed: 04/07/04 12:45  
Lab Samp ID: D010-06 Dilution Factor: 1  
Lab File ID: RDB109 Matrix : WATER  
Ext Btch ID: V003D09 % Moisture : NA  
Calib. Ref.: RCB248 Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	5	.2
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	5	.3
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,2-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROPROPENE	ND	5	.2
1,2,3-TRICHLOROBENZENE	ND	5	.2
1,2,3-TRICHLOROPROPANE	ND	5	.2
1,2,4-TRICHLOROBENZENE	ND	5	.2
1,2,4-TRIMETHYLBENZENE	ND	5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	.2
1,2-DICHLOROBENZENE	ND	5	.2
1,2-DICHLOROETHANE	ND	5	.2
1,2-DICHLOROPROPANE	ND	5	.2
1,2-ETHYLENEDIBROMIDE	ND	5	.2
1,2,5-TRIMETHYLBENZENE	ND	5	.2
1,3-DICHLOROBENZENE	ND	5	.2
1,3-DICHLOROPROPANE	ND	5	.2
1,4-DICHLOROBENZENE	ND	5	.2
2,2-DICHLOROPROPANE	ND	5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	5	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	10	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	ND	10	.2
BENZENE	ND	5	.2
BROMOBENZENE	ND	5	.2
BROMOCHLOROMETHANE	ND	5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.2
BROMOMETHANE	ND	5	.2
CARBON DISULFIDE	ND	5	.2
CARBON TETRACHLORIDE	ND	5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
DIBROMOMETHANE	ND	5	.2
DICHLORODIFLUOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	5	.2
HEXACHLOROBUTADIENE	ND	5	.2
ISOPROPYL BENZENE	ND	5	.2
M/P-XYLENES	ND	5	.2
METHYLENE CHLORIDE	ND	5	.2
N-BUTYLBENZENE	ND	5	.2
N-PROPYLBENZENE	ND	5	.2
NAPHTHALENE	ND	5	.2
O-XYLENE	ND	5	.2
P-ISOPROPYLTOLUENE	ND	5	.2
SEC-BUTYLBENZENE	ND	5	.2
STYRENE	ND	5	.2
TERT-BUTYLBENZENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	5	.2
TRICHLOROETHENE	ND	5	.2
TRICHLOROFLUOROMETHANE	ND	5	.2
VINYL CHLORIDE	ND	10	.2
ACRYLONITRILE	ND	10	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	120	63-132
TOLUENE-DB	96	73-129
BROMOFLUOROBENZENE	96	73-129

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

2020

9/31/17/04

**CASE NARRATIVE****CLIENT: TETRA TECH FW, INC.****PROJECT: MFA, CTO 71, SITE 1****SDG: 04D010****SW3520C/8081A  
PESTICIDES**

Five (5) water samples were received on 04/01/04 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All QC criteria were met.

SW3520C/8081A  
 PESTICIDES

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
Batch No. : 04D010	Date Extracted: 04/01/04 17:00
Sample ID: 71-S1-025	Date Analyzed: 04/02/04 21:05
Lab Samp ID: D010-02	Dilution Factor: .94
Lab File ID: SD02022A	Matrix : WATER
Ext Btch ID: CPD002W	% Moisture : NA
Calib. Ref.: SD02003A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.059 (ND)	.047	.0094
GAMMA-BHC (LINDANE)	.011J (ND)	.047	.0094
BETA-BHC	J (.029J) 4.2	.047	.0094
HEPTACHLOR	WT (ND) ND	.047	.0094
DELTA-BHC	WT (ND) .019J	.047	.0094
ALDRIN	(ND) .012J	.047	.0094
HEPTACHLOR EPOXIDE	(ND) .11	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.094	.019
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	WT (ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	WT (ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	WT (ND) ND	.094	.019
METHOXYCHLOR	WT (ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	100 (109)	20-145	
DECACHLOROBIPHENYL	76 (82)	20-165	

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

157m

SW3520C/8081A  
 PESTICIDES

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
Batch No. : 04D010	Date Extracted: 04/01/04 17:00
Sample ID: 71-S1-026	Date Analyzed: 04/02/04 21:30
Lab Samp ID: D010-03	Dilution Factor: .94
Lab File ID: SD02023A	Matrix : WATER
Ext Btch ID: CPD002W	% Moisture : NA
Calib. Ref.: SD02003A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .035J	.047	.0094
HEPTACHLOR	.018J (ND) W	.047	.0094
DELTA-BHC	.015J (ND) W	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.094	.019
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	W (ND) ND	.094	.028
ENDOSULFAN II	W (ND) ND	.094	.019
4,4'-DDT	W (ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	W (ND) ND	.094	.019
METHOXYCHLOR	W (ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	88 (93)	20-145
DECACHLOROBIPHENYL	77 (83)	20-165

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

5007

SW3520C/8081A  
PESTICIDES

Client : TETRA TECH FW, INC. Date Collected: 03/30/04  
Project : MFA, CTO 71, SITE 1 Date Received: 04/01/04  
Batch No. : 04D010 Date Extracted: 04/01/04 17:00  
Sample ID: 71-S1-027 Date Analyzed: 04/02/04 21:55  
Lab Samp ID: D010-04 Dilution Factor: .94  
Lab File ID: SD02024A Matrix : WATER  
Ext Btch ID: CPD002W % Moisture : NA  
Calib. Ref.: SD02003A Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .028J	.047	.0094
HEPTACHLOR	.027J (ND) W	.047	.0094
DELTA-BHC	.012J (ND) W	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.094	.019
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	W (ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	W (ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	W (ND) ND	.094	.019
METHOXYCHLOR	W (ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	89 (93)	20-145
DECACHLOROBIPHENYL	77 (81)	20-165

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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Client      : TETRA TECH FW, INC.      Date Collected: 03/31/04
Project     : MFA, CTO 71, SITE 1      Date Received: 04/01/04
Batch No.   : 04D010                   Date Extracted: 04/01/04 17:00
Sample ID: 71-S1-028                   Date Analyzed: 04/02/04 22:21
Lab Samp ID: D010-05                   Dilution Factor: .94
Lab File ID: SDO2025A                  Matrix       : WATER
Ext Btch ID: CPD002W                   % Moisture    : NA
Calib. Ref.: SDO2003A                  Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .037J	.047	.0094
HEPTACHLOR	.015J (ND) W	.047	.0094
DELTA-BHC	.016J (ND) W	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.094	.019
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	W (ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	W (ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	W (ND) ND	.094	.019
METHOXYCHLOR	W (ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	92 (94)	20-145
DECACHLOROBIPHENYL	77 (82)	20-165

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

152



SW3520C/8081A  
 PESTICIDES

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Client       : TETRA TECH FW, INC.      Date Collected: 03/31/04
Project      : MFA, CTO 71, SITE 1      Date Received: 04/01/04
Batch No.    : 040010                   Date Extracted: 04/01/04 17:00
Sample ID    : 71-S1-029                 Date Analyzed: 04/02/04 22:46
Lab Samp ID  : D010-06                   Dilution Factor: .94
Lab File ID  : SD02026A                  Matrix       : WATER
Ext Btch ID  : CPD002W                   % Moisture    : NA
Calib. Ref.  : SD02003A                  Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.11 (.018J) J	.047	.0094
GAMMA-BHC (LINDANE)	.04J (ND)	.047	.0094
BETA-BHC	J (.047J) .4	.047	.0094
HEPTACHLOR	.065 (ND) W	.047	.0094
DELTA-BHC	J (.03J) .01J	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) .029J	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.094	.019
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	W (ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	.048J (ND) W	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	W (ND) ND	.094	.019
METHOXYCHLOR	W (ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	101 (109)	20-145	
DECACHLOROBIPHENYL	75 (81)	20-165	

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, CTO 71, SITE 1  
**SDG:** 04D010

**SW3520C/8082**  
**PCBs**

Five (5) water samples were received on 04/01/04 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was five-point for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 85-115%.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All QC criteria were met.

SW3520C/8082  
 PCBs

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Client   : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project  : MFA, CTO 71, SITE 1      Date Received: 04/01/04
Batch No. : 04D010                  Date Extracted: 04/01/04 17:00
Sample ID: 71-S1-025                Date Analyzed: 04/02/04 21:05
Lab Samp ID: D010-02                Dilution Factor: .94
Lab File ID: SD02022A               Matrix       : WATER
Ext Btch ID: CPD002W                % Moisture   : NA
Calib. Ref.: SD02006A              Instrument ID : GCT008
=====
  
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	1.9	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(110) 101	20-145
DECACHLOROBIPHENYL	(103) 106	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

15730M

5120

SW3520C/8082  
 PCBs

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Client      : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project     : MFA, CTO 71, SITE 1     Date Received: 04/01/04
Batch No.   : 04D010                  Date Extracted: 04/01/04 17:00
Sample ID: 71-S1-026                  Date Analyzed: 04/02/04 21:30
Lab Samp ID: D010-03                  Dilution Factor: .94
Lab File ID: SD02023A                 Matrix       : WATER
Ext Btch ID: CPD002W                  % Moisture    : NA
Calib. Ref.: SD02006A                 Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	1.9	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(73) 89	20-145
DECACHLOROBIPHENYL	(104) 107	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit



SW3520C/8082  
PCBs

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=====
Client   : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project  : MFA, CTO 71, SITE 1      Date Received: 04/01/04
Batch No. : 04D010                  Date Extracted: 04/01/04 17:00
Sample ID: 71-S1-027                Date Analyzed: 04/02/04 21:55
Lab Samp ID: D010-04                Dilution Factor: .94
Lab File ID: SD02024A               Matrix      : WATER
Ext Btch ID: CPD002W                % Moisture   : NA
Calib. Ref.: SD02006A               Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	1.9	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(75)   85	20-145
DECACHLOROBIPHENYL	(103)   104	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

*182*

SW3520C/8082  
 PCBs

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 03/31/04
Project      : MFA, CTO 71, SITE 1      Date Received: 04/01/04
Batch No.    : 04D010                   Date Extracted: 04/01/04 17:00
Sample ID    : 71-S1-028                 Date Analyzed: 04/02/04 22:21
Lab Samp ID  : D010-05                   Dilution Factor: .94
Lab File ID  : SD02025A                  Matrix          : WATER
Ext Btch ID  : CPD002W                    % Moisture       : NA
Calib. Ref.  : SD02006A                  Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	1.9	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(76)   85	20-145
DECACHLOROBIPHENYL	(100)   106	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
 PCBs

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/31/04
Project     : MFA, CTO 71, SITE 1      Date Received: 04/01/04
Batch No.   : 04D010                   Date Extracted: 04/01/04 17:00
Sample ID: 71-S1-029                   Date Analyzed: 04/02/04 22:46
Lab Samp ID: D010-06                   Dilution Factor: .94
Lab File ID: SD02026A                  Matrix       : WATER
Ext Stch ID: CPD002W                    % Moisture    : NA
Calib. Ref.: SD02006A                  Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	1.9	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(86)   97	20-145
DECACHLOROBIPHENYL	(102)   104	20-165

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit



5132

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, CTO 71, SITE 1  
**SDG:** 04D010

**METHOD 3010A/6010B**  
**TOTAL AND DISSOLVED METALS BY ICP**

Five (5) water samples were received on 04/01/04 for Total and Dissolved Metals analyses by Method 3010A/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample D010-02 (Total and Dissolved) were analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample D010-02 (Total and Dissolved ) were spiked. All recoveries were within QC limit except Mg and Na in MS/MSD of D010-02 (Total) and Ca, Mg, K and Na in D010-02 (Dissolved) were out the limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

Samples were analyzed at DF20 for regular ICP runs and at DF10 for Trace-ICP runs due to matrix interference from high concentration level of Sodium.



METHOD 3010A/6010B  
METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 040010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-025	Date Analyzed: 04/14/04 11:38
Lab Samp ID: D010-02	Dilution Factor: 20
Lab File ID: I07D022024	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I07D022020	Instrument ID : EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	2.61J	4	1.2
Antimony	ND	2	.8
Barium	.491	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	408	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	1.65J	20	.6
Magnesium	1690	20	2
Manganese	1.91J	2	.06
Nickel	ND	.4	.2
Potassium	352	100	20
Silver	ND	.4	.1
Sodium	12400	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

51

7004

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-025	Date Analyzed: 04/26/04 19:59
Lab Samp ID: D010-02	Dilution Factor: 10
Lab File ID: I31D053024	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053020	Instrument ID : EMAXI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

*SN*

7005

METHOD 3010A/6010B  
 METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-026	Date Analyzed: 04/14/04 12:03
Lab Samp ID: D010-03	Dilution Factor: 20
Lab File ID: I07D022029	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I07D022020	Instrument ID : EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.117J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	433	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	.669J	20	.6
Magnesium	1520	20	2
Manganese	1.06J	2	.06
Nickel	ND	.4	.2
Potassium	409	100	20
Silver	ND	.4	.1
Sodium	12100	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

7006

METHOD 3010A/6010B  
 METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-026	Date Analyzed: 04/26/04 20:27
Lab Samp ID: D010-03	Dilution Factor: 10
Lab File ID: I31D053029	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053020	Instrument ID : EMAXT131

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

7007

METHOD 3010A/6010B  
METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-027	Date Analyzed: 04/14/04 12:07
Lab Samp ID: D010-04	Dilution Factor: 20
Lab File ID: I07D022030	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I07D022020	Instrument ID : EMAXT107

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.111J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	434	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	.682J	20	.6
Magnesium	1560	20	2
Manganese	1.05J	2	.06
Nickel	ND	.4	.2
Potassium	375	100	20
Silver	ND	.4	.1
Sodium	12200	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

*1577*

7008

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 040010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-027	Date Analyzed: 04/26/04 20:32
Lab Samp ID: D010-04	Dilution Factor: 10
Lab File ID: I31D053030	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053020	Instrument ID : EMAXI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

*1873*

METHOD 3010A/6010B  
 METALS BY ICP

Client : TETRA TECH FW. INC.	Date Collected: 03/31/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-028	Date Analyzed: 04/14/04 12:11
Lab Samp ID: D010-05	Dilution Factor: 20
Lab File ID: I07D022031	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I07D022020	Instrument ID : EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.208	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	364	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	15.6J	20	.6
Magnesium	1530	20	2
Manganese	2.05	2	.06
Nickel	ND	.4	.2
Potassium	406	100	20
Silver	ND	.4	.1
Sodium	12200	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

7010

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/31/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-028	Date Analyzed: 04/26/04 20:37
Lab Samp ID: D010-05	Dilution Factor: 10
Lab File ID: I31D053031	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053020	Instrument ID : EMAXTI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
-----	-----	-----	-----
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	.0566J	.1	.05

RL: Reporting Limit

*Handwritten signature/initials*



METHOD 3010A/6010B  
 METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/31/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 040010	Date Extracted: 04/05/04 10:30
Sample ID: 71-SI-029	Date Analyzed: 04/14/04 12:27
Lab Samp ID: D010-06	Dilution Factor: 20
Lab File ID: I07D022034	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I07D022032	Instrument ID : EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.359	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	424	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	9.63J	20	.6
Magnesium	1780	20	2
Manganese	1.58J	2	.06
Nickel	ND	.4	.2
Potassium	494	100	20
Silver	ND	.4	.1
Sodium	14100	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

7012

METHOD 3010A/6010B  
METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/31/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 040010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-029	Date Analyzed: 04/26/04 20:53
Lab Samp ID: D010-06	Dilution Factor: 10
Lab File ID: I31D053034	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053032	Instrument ID : EMAXTI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

*18*

METHOD 3010A/6010B  
 DISSOLVED METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-025	Date Analyzed: 04/14/04 11:01
Lab Samp ID: D010-02	Dilution Factor: 20
Lab File ID: I07D022016	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I07D022008	Instrument ID : EMAXT107

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	ND	4	1.2
Antimony	ND	2	.8
Barium	.485	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	404	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	1.8J	20	.6
Magnesium	1690	20	2
Manganese	1.89J	2	.06
Nickel	ND	.4	.2
Potassium	383	100	20
Silver	ND	.4	.1
Sodium	12500	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

7026

METHOD 3010A/6010B  
DISSOLVED METALS BY TRACE ICP

Client : TETRA TECH FW. INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-025	Date Analyzed: 04/26/04 19:17
Lab Samp ID: 0010-02	Dilution Factor: 10
Lab File ID: I31D053016	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053008	Instrument ID : EMAXI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

*Handwritten signature*

METHOD 3010A/6010B  
 DISSOLVED METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-026	Date Analyzed: 04/14/04 11:10
Lab Samp ID: D010-03	Dilution Factor: 20
Lab File ID: I07D022018	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I07D022008	Instrument ID : EMAXT107

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	3.55J	4	1.2
Antimony	ND	2	.8
Barium	.121J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	433	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	.836J	20	.6
Magnesium	1530	20	2
Manganese	1.07J	2	.06
Nickel	ND	.4	.2
Potassium	399	100	20
Silver	ND	.4	.1
Sodium	12200	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

7028

METHOD 3010A/6010B  
DISSOLVED METALS BY ICP

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project     : MFA, CTO 71, SITE 1      Date Received: 04/01/04
SDG NO.     : 04D010                   Date Extracted: 04/05/04 10:30
Sample ID   : 71-S1-026                 Date Analyzed: 04/14/04 11:10
Lab Samp ID : D010-03                    Dilution Factor: 20
Lab File ID : I07D022018                 Matrix      : WATER
Ext Btch ID : IPD010W                     % Moisture   : NA
Calib. Ref.: I07D022008                 Instrument ID : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum*	ND	.4	1.2
Antimony	ND	.2	.8
Barium	.121J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	433	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	.836J	20	.6
Magnesium	1530	20	2
Manganese	1.07J	2	.06
Nickel	ND	.4	.2
Potassium	399	100	20
Silver	ND	.4	.1
Sodium	12200	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

\* : Aluminum was detected but was not confirmed in the Trace-ICP run and lab contamination was suspected during dilution process. The result was reported from Trace-ICP run on 04/26/04 19:27 | File ID I31D053018

Revised Report  
7028

METHOD 3010A/6010B  
DISSOLVED METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-026	Date Analyzed: 04/26/04 19:27
Lab Samp ID: D010-03	Dilution Factor: 10
Lab File ID: I31D053018	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053008	Instrument ID : EMAXI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

*152*

METHOD 3010A/6010B  
 DISSOLVED METALS BY ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-027	Date Analyzed: 04/14/04 11:14
Lab Samp ID: D010-04	Dilution Factor: 20
Lab File ID: I07D022019	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I07D022008	Instrument ID : EMAXT107

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	18.8	4	1.2
Antimony	ND	2	.8
Barium	.164J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	479	20	2
Chromium	.107J	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	1.45J	20	.6
Magnesium	1690	20	2
Manganese	1.2J	2	.06
Nickel	ND	.4	.2
Potassium	477	100	20
Silver	ND	.4	.1
Sodium	13400	20	.5
Vanadium	ND	.2	.1
Zinc	.102J	.4	.1

RL: Reporting Limit

7030



METHOD 3010A/6010B  
DISSOLVED METALS BY ICP

```

=====
Client   : TETRA TECH FW, INC.      Date Collected: 03/30/04
Project  : MFA, CTO 71, SITE 1      Date Received: 04/01/04
SDG NO.  : 04D010                   Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-027                Date Analyzed: 04/14/04 11:14
Lab Samp ID: D010-04                Dilution Factor: 20
Lab File ID: I07D022019              Matrix       : WATER
Ext Btch ID: IPD010W                 % Moisture    : NA
Calib. Ref.: I07D022008              Instrument ID : EMAXTI07
=====
  
```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum*	ND	4	1.2
Antimony	ND	2	.8
Barium	.164J	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	479	20	2
Chromium	.107J	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	1.45J	20	.6
Magnesium	1690	20	2
Manganese	1.2J	2	.06
Nickel	ND	.4	.2
Potassium	477	100	20
Silver	ND	.4	.1
Sodium	13400	20	.5
Vanadium	ND	.2	.1
Zinc	.102J	.4	.1

RL: Reporting Limit

\* : Aluminum was detected but was not confirmed in the Trace-ICP run and lab contamination was suspected during dilution process. The result was reported from Trace-ICP run on 04/26/04 19:32 | File ID I31D053019

Revised Report

7030

METHOD 3010A/6010B  
DISSOLVED METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/30/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-027	Date Analyzed: 04/26/04 19:32
Lab Samp ID: D010-04	Dilution Factor: 10
Lab File ID: I31D053019	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053008	Instrument ID : EMAXT131

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
-----	-----	-----	-----
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

*15/2*

7031

METHOD 3010A/6010B  
 DISSOLVED METALS BY ICP

Client	: TETRA TECH FW, INC.	Date Collected:	03/31/04
Project	: MFA, CTO 71, SITE 1	Date Received:	04/01/04
SDG NO.	: 04D010	Date Extracted:	04/05/04 10:30
Sample ID:	71-S1-028	Date Analyzed:	04/14/04 11:30
Lab Samp ID:	D010-05	Dilution Factor:	20
Lab File ID:	I07D022022	Matrix	: WATER
Ext Btch ID:	IPD010W	% Moisture	: NA
Calib. Ref.:	I07D022020	Instrument ID	: EMAXT107

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	9.13	4	1.2
Antimony	ND	2	.8
Barium	.246	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	411	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	17J	20	.6
Magnesium	1750	20	2
Manganese	2.28	2	.06
Nickel	ND	.4	.2
Potassium	487	100	20
Silver	ND	.4	.1
Sodium	14000	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

1572

7032

METHOD 3010A/6010B  
DISSOLVED METALS BY ICP

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/31/04
Project     : MFA, CTO 71, SITE 1      Date Received: 04/01/04
SDG NO.     : 04D010                  Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-028                  Date Analyzed: 04/14/04 11:30
Lab Samp ID: D010-05                  Dilution Factor: 20
Lab File ID: I07D022022               Matrix      : WATER
Ext Btch ID: IPD010W                  % Moisture   : NA
Calib. Ref.: I07D022020               Instrument ID: EMAXTI07
=====
  
```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum*	ND	4	1.2
Antimony	ND	2	.8
Barium	.246	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	411	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	17J	20	.6
Magnesium	1750	20	2
Manganese	2.28	2	.06
Nickel	ND	.4	.2
Potassium	487	100	20
Silver	ND	.4	.1
Sodium	14000	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

\* : Aluminum was detected but was not confirmed in the Trace-ICP run and lab contamination was suspected during dilution process. The result was reported from Trace-ICP run on 04/26/04 19:48 | File ID I31D053022

Revised Report

7032

METHOD 3010A/6010B  
DISSOLVED METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/31/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-028	Date Analyzed: 04/26/04 19:48
Lab Samp ID: D010-05	Dilution Factor: 10
Lab File ID: I31D053022	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053020	Instrument ID : EMAXTI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

*WMM*

7033

METHOD 3010A/6010B  
DISSOLVED METALS BY ICP

Client	: TETRA TECH FW, INC.	Date Collected:	03/31/04
Project	: MFA, CTO 71, SITE 1	Date Received:	04/01/04
SDG NO.	: 040010	Date Extracted:	04/05/04 10:30
Sample ID:	71-S1-029	Date Analyzed:	04/14/04 11:34
Lab Samp ID:	D010-06	Dilution Factor:	20
Lab File ID:	I07D022023	Matrix	: WATER
Ext Btch ID:	IPD010W	% Moisture	: NA
Calib. Ref.:	I07D022020	Instrument ID	: EMAXT107

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Aluminum	3.8J	4	1.2
Antimony	ND	2	.8
Barium	.384	.2	.04
Beryllium	ND	.2	.02
Cadmium	ND	.2	.04
Calcium	443	20	2
Chromium	ND	.4	.1
Cobalt	ND	.4	.1
Copper	ND	.2	.1
Iron	9.34J	20	.6
Magnesium	1870	20	2
Manganese	1.71J	2	.06
Nickel	ND	.4	.2
Potassium	530	100	20
Silver	ND	.4	.1
Sodium	14900	20	.5
Vanadium	ND	.2	.1
Zinc	ND	.4	.1

RL: Reporting Limit

157

7034

METHOD 3010A/6010B  
DISSOLVED METALS BY TRACE ICP

Client : TETRA TECH FW, INC.	Date Collected: 03/31/04
Project : MFA, CTO 71, SITE 1	Date Received: 04/01/04
SDG NO. : 04D010	Date Extracted: 04/05/04 10:30
Sample ID: 71-S1-029	Date Analyzed: 04/26/04 19:53
Lab Samp ID: D010-06	Dilution Factor: 10
Lab File ID: I31D053023	Matrix : WATER
Ext Btch ID: IPD010W	% Moisture : NA
Calib. Ref.: I31D053020	Instrument ID : EMAXTI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	ND	.1	.04
Lead	ND	.1	.02
Selenium	ND	.1	.05
Thallium	ND	.1	.05

RL: Reporting Limit

*Handwritten signature*

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, CTO 71, SITE 1

**SDG:** 04D010

**METHOD 7470A  
TOTAL & DISSOLVED MERCURY BY COLD VAPOR**

Five (5) water samples were received on 04/01/04 for Total and Dissolved Mercury analyses by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analysis met the holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit level.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within the control limits.

4. Serial Dilution/Post Analytical Spike

Sample C211-03 from another SDG was analyzed for serial dilution. %Difference was not evaluated since diluted sample result was not detected. Analytical spike was performed and the QC criteria were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were analyzed with dilution factor of 10.



METHOD 7470A  
MERCURY BY COLD VAPOR

Client : TETRA TECH FM, INC.  
Project : MEA, CTO 71, SITE 1  
Batch No. : 04D010  
Matrix : WATER  
Instrument ID : TI047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGD0018WB	ND	1	NA	.5	.25	04/20/0415:33	04/19/0416:00	M47D017034	M47D017032	HGD018W	NA	04/19/04
LCS1W	HGD0018WL	5.07	1	NA	.5	.25	04/20/0415:35	04/19/0416:00	M47D017035	M47D017032	HGD018W	NA	04/19/04
LCD1W	HGD0018WC	5.07	1	NA	.5	.25	04/20/0415:37	04/19/0416:00	M47D017036	M47D017032	HGD018W	NA	04/19/04
71-S1-025	D010-02	ND	10	NA	5	2.5	04/20/0416:08	04/19/0416:00	M47D017050	M47D017044	HGD018W	03/30/04	04/01/04
71-S1-026	D010-03	ND	10	NA	5	2.5	04/20/0416:10	04/19/0416:00	M47D017051	M47D017044	HGD018W	03/30/04	04/01/04
71-S1-027	D010-04	ND	10	NA	5	2.5	04/20/0416:12	04/19/0416:00	M47D017052	M47D017044	HGD018W	03/30/04	04/01/04
71-S1-028	D010-05	ND	10	NA	5	2.5	04/20/0416:14	04/19/0416:00	M47D017053	M47D017044	HGD018W	03/31/04	04/01/04
71-S1-029	D010-06	ND	10	NA	5	2.5	04/20/0416:17	04/19/0416:00	M47D017054	M47D017044	HGD018W	03/31/04	04/01/04

RL: Reporting Limit

10/13/04

7152

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FM, INC.  
Project : MFA, CTO 71, SITE 1  
Batch No. : 040010

Matrix : WATER  
Instrument ID : TI047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFTD	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGD017MB	ND	1	NA	.5	.25	04/20/0414:39	04/19/0416:00	M47D017010	M47D017008	HGD017W	NA	04/19/04
LCS1W	HGD017ML	5.16	1	NA	.5	.25	04/20/0414:41	04/19/0416:00	M47D017011	M47D017008	HGD017W	NA	04/19/04
LCD1W	HGD017MC	5.11	1	NA	.5	.25	04/20/0414:44	04/19/0416:00	M47D017012	M47D017008	HGD017W	NA	04/19/04
71-S1-025	D010-02	ND	10	NA	5	2.5	04/20/0415:15	04/19/0416:00	M47D017026	M47D017020	HGD017W	03/30/04	04/01/04
71-S1-026	D010-03	ND	10	NA	5	2.5	04/20/0415:17	04/19/0416:00	M47D017027	M47D017020	HGD017W	03/30/04	04/01/04
71-S1-027	D010-04	ND	10	NA	5	2.5	04/20/0415:19	04/19/0416:00	M47D017028	M47D017020	HGD017W	03/30/04	04/01/04
71-S1-028	D010-05	ND	10	NA	5	2.5	04/20/0415:22	04/19/0416:00	M47D017029	M47D017020	HGD017W	03/31/04	04/01/04
71-S1-029	D010-06	ND	10	NA	5	2.5	04/20/0415:24	04/19/0416:00	M47D017030	M47D017020	HGD017W	03/31/04	04/01/04

RL: Reporting Limit

52

7156

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, CTO 71, SITE 1

**SDG:** 04D010

**METHOD 353.3**  
**NITRATE/NITRITE-N**

Five (5) water samples were received on 04/01/04 for Nitrate/Nitrite-N analysis by Method 353.3 in accordance with "Methods for Chemical Analysis of water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Sample Analysis

Sample analyses were performed within the QC requirements. All criteria were met.

METHOD 353.3  
NITRATE/NITRITE-N

Client : TETRA TECH FM, INC.  
Project : MFA, CTO 71, SITE 1  
Batch No. : 040010

Matrix : WATER  
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
M8LK1W	NAD001W8	ND	1	NA	.1	.02	04/09/0411:09	NA	NAD001W-10	NAD001W-07	NAD001W	NA	NA
LCSTW	NAD001W1	.520	1	NA	.1	.02	04/09/0411:10	NA	NAD001W-11	NAD001W-07	NAD001W	NA	NA
LCSTW	NAD001W2	.530	1	NA	.1	.02	04/09/0411:11	NA	NAD001W-12	NAD001W-07	NAD001W	NA	NA
71-S1-025	D010-02R	1.68	2	NA	.1	.02	04/09/0411:24	NA	NAD001W-25	NAD001W-19	NAD001W	03/30/04	04/01/04
71-S1-026	D010-03R	2.95	4	NA	.1	.02	04/09/0411:26	NA	NAD001W-27	NAD001W-19	NAD001W	03/30/04	04/01/04
71-S1-027	D010-04R	2.99	4	NA	.1	.02	04/09/0411:28	NA	NAD001W-29	NAD001W-19	NAD001W	03/30/04	04/01/04
71-S1-028	D010-05	.215	1	NA	.1	.02	04/09/0411:29	NA	NAD001W-30	NAD001W-19	NAD001W	03/31/04	04/01/04
71-S1-029	D010-06	ND	1	NA	.1	.02	04/09/0411:32	NA	NAD001W-33	NAD001W-31	NAD001W	03/31/04	04/01/04

MS

8002

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, CTO 71, SITE 1  
**SDG:** 04D010

**METHOD 415.1  
TOC**

Five (5) water samples were received on 04/01/04 for Total Organic Carbon analysis by Method 415.1 in accordance with "Methods for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time  
Analysis met holding time criteria.
2. Method Blank  
Method blanks were free of contamination at reporting limit.
3. Lab Control Sample/Lab Control Sample Duplicate  
Lab control results were within QC limit.
4. Duplicate  
Sample D010-06 was analyzed for duplicate. %RPD was within QC limit.
5. Matrix Spike  
Sample D010-06 was spiked. %Recovery was within QC limit.
6. Sample Analysis  
Sample analysis was performed within the QC requirements. All criteria were met.

METHOD 415.1  
TOC

Client : TETRA TECH FW, INC.  
Project : NFA, CTO 71, SITE 1  
Batch No. : 04D010  
Matrix : WATER  
Instrument ID : 162

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL	REF	PREP	BATCH	Collection DATE/TIME	Received DATE/TIME
MRLK1W	TC0002WB	ND	1	NA	5	1	04/12/0410:28	NA	TC0012-5	TC0012-2		TC0002W		NA	NA
	LCS1W	34.4	1	NA	5	1	04/12/0410:39	NA	TC0012-6	TC0012-2		TC0002W		NA	NA
	TC0002WL	30.8	1	NA	5	1	04/12/0410:49	NA	TC0012-7	TC0012-2		TC0002W		NA	NA
LCD1W	TC0002WC	11.3	1	NA	5	1	04/12/0415:29	NA	TC0012-34	TC0012-26		TC0002W		03/30/04	04/01/04
71-S1-025	D010-02	10.0	1	NA	5	1	04/12/0415:39	NA	TC0012-35	TC0012-26		TC0002W		03/30/04	04/01/04
71-S1-026	D010-03	10.0	1	NA	5	1	04/12/0415:49	NA	TC0012-36	TC0012-26		TC0003W		NA	NA
MRLK2W	TC0003WB	ND	1	NA	5	1	04/12/0415:59	NA	TC0012-37	TC0012-26		TC0003W		NA	NA
LCS2W	TC0003WL	33.5	1	NA	5	1	04/12/0416:30	NA	TC0012-40	TC0012-38		TC0003W		03/30/04	04/01/04
71-S1-027	D010-04	10.0	1	NA	5	1	04/12/0416:41	NA	TC0012-41	TC0012-38		TC0003W		03/31/04	04/01/04
71-S1-028	D010-05	22.0	1	NA	5	1	04/12/0416:51	NA	TC0012-42	TC0012-38		TC0003W		03/31/04	04/01/04
71-S1-029	D010-06	18.0	1	NA	5	1	04/12/0417:01	NA	TC0012-43	TC0012-38		TC0003W		03/31/04	04/01/04
71-S1-0290UP	D010-06D	17.9	1	NA	5	1	04/12/0417:12	NA	TC0012-44	TC0012-38		TC0003W		03/31/04	04/01/04
71-S1-029WS	D010-06M	41.6	1	NA	5	1	04/12/0417:12	NA	TC0012-45	TC0012-38		TC0003W		03/31/04	04/01/04

RL : Reporting Limit

*asm*

8008

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, CTO 71  
**Collection Date:** March 30 through March 31, 2004  
**LDC Report Date:** May 6, 2004  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 04D010

**Sample Identification**

71-S1-025  
71-S1-026  
71-S1-027  
71-S1-028  
71-S1-029  
71-S1-029MS  
71-S1-029DUP

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 353.3 for Nitrate/Nitrite as Nitrogen, and EPA Method 415.1 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration of each method were met.

### **b. Calibration Verification**

Calibration verification frequency and analysis criteria were met for each method when applicable.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## **IV. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **V. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Sample Result Verification**

Raw data were not reviewed for this SDG.

## **VIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## IX. Field Duplicates

Samples 71-S1-026 and 71-S1-027 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	71-S1-026	71-S1-027	
Nitrate/Nitrite as N	2.95	2.99	1
Total organic carbon	10.0	10.0	0

## X. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, CTO 71**

**Wet Chemistry - Data Qualification Summary - SDG 04D010**

No Sample Data Qualified in this SDG

**Moffett Air Field, CTO 71**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04D010**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 71  
**Collection Date:** March 30 through March 31, 2004  
**LDC Report Date:** May 6, 2004  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04D010

**Sample Identification**

71-S1-025  
71-S1-026  
71-S1-027  
71-S1-028  
71-S1-029  
71-S1-025F  
71-S1-026F  
71-S1-027F  
71-S1-028F  
71-S1-029F  
71-S1-025MS  
71-S1-025MSD  
71-S1-025FMS  
71-S1-025FMSD

Sample IDs ending in "F" were analyzed for dissolved metals

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Potassium (20x)	1.34 mg/L	All samples in SDG 04D010
ICB/CCB	Potassium (20x) Thallium (10x)	1619 ug/L 5.22 ug/L	All samples in SDG 04D010

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
71-S1-028	Thallium	0.0566 mg/L	0.0566U mg/L

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples.

The concentration results for the dissolved metal sample was greater than the total metal sample as follows:

Analyte	Concentration (mg/L)	
	71-S1-027	71-S1-027F
Aluminum	4U	18.8
Potassium	375	477

Analyte	Concentration (mg/L)	
	71-S1-028	71-S1-028F
Aluminum	4U	9.13

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 71-S1-026 and 71-S1-027 and samples 71-S1-026F and 71-S1-027F were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	71-S1-026	71-S1-027	
Barium	0.117	0.111	5
Calcium	433	434	0
Iron	0.669	0.682	2
Magnesium	1520	1560	3
Manganese	1.06	1.05	1
Potassium	409	375	9
Sodium	12100	12200	1

Analyte	Concentration (mg/L)		RPD
	71-S1-026F	71-S1-027F	
Aluminum	3.55	18.8	136
Barium	0.121	0.164	30
Calcium	433	479	10
Chromium	0.4U	0.107	Not calculable
Iron	0.836	1.45	54



Analyte	Concentration (mg/L)		RPD
	71-S1-026F	71-S1-027F	
Magnesium	1530	1690	10
Manganese	1.07	1.2	11
Potassium	399	477	18
Sodium	12200	13400	9
Zinc	0.4U	0.102	Not calculable

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 71**

**Metals - Data Qualification Summary - SDG 04D010**

No Sample Data Qualified in this SDG

**Moffett Airfield, CTO 71**

**Metals - Laboratory Blank Data Qualification Summary - SDG 04D010**

SDG	Sample	Analyte	Modified Final Concentration	A or P
04D010	71-S1-028	Thallium	0.0566U mg/L	A

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 71  
**Collection Date:** March 30 through March 31, 2004  
**LDC Report Date:** May 7, 2004  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04D010

**Sample Identification**

71-S1-025  
71-S1-026  
71-S1-027  
71-S1-028  
71-S1-029

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 71-S1-026 and 71-S1-027 were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 71**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 04D010**

No Sample Data Qualified in this SDG

**Moffett Airfield, CTO 71**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 04D010**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 71  
**Collection Date:** March 30 through March 31, 2004  
**LDC Report Date:** May 10, 2004  
**Matrix:** Water  
**Parameters:** Chlorinated Pesticides  
**Validation Level:** EPA Level IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04D010

**Sample Identification**

71-S1-025  
71-S1-026  
71-S1-027  
71-S1-028  
71-S1-029



## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
4/2/04	SD02004A	RTX-CLPEST	Heptachlor 4,4'-DDD 4,4'-DDT Methoxychlor Endrin ketone	17 17 31 33 16	All samples in SDG 04D010	J (all detects) UJ (all non-detects)	A
4/2/04	SD02004A	RTX-CLPESTII	delta-BHC 4,4'-DDT Methoxychlor	18 17 17	All samples in SDG 04D010	J (all detects) UJ (all non-detects)	A

Retention times (RT) of all compounds in the calibration standards were within QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

The individual 4,4'-DDT and Endrin breakdowns were less than or equal to 15.0% .

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria.

The sample results for detected compounds from the two columns were within 40.0% relative percent differences (RPD) with the following exceptions:

Sample	Compound	%RPD	Flag	A or P
71-S1-025	beta-BHC	197	J (all detects)	A
71-S1-029	alpha-BHC beta-BHC delta-BHC	144 158 99	J (all detects) J (all detects) J (all detects)	A

### **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

### **XIV. Field Duplicates**

Samples 71-S1-026 and 71-S1-027 were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 71****Chlorinated Pesticides - Data Qualification Summary - SDG 04D010**

SDG	Sample	Compound	Flag	A or P	Reason
04D010	71-S1-025 71-S1-026 71-S1-027 71-S1-028 71-S1-029	Heptachlor 4,4'-DDD 4,4'-DDT Methoxychlor Endrin ketone delta-BHC	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04D010	71-S1-025	beta-BHC	J (all detects)	A	Compound quantitation and CRQLs (%D)
04D010	71-S1-029	alpha-BHC beta-BHC delta-BHC	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs (%D)

**Moffett Airfield, CTO 71****Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 04D010**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, CTO 71  
**Collection Date:** March 30 through March 31, 2004  
**LDC Report Date:** May 10, 2004  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 04D010

**Sample Identification**

71-S1-031  
71-S1-025  
71-S1-026  
71-S1-027  
71-S1-028  
71-S1-029

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

All samples were received in good condition with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
71-S1-025 71-S1-026 71-S1-027	All TCL compounds	A headspace of >6 mm was apparent in the sample containers.	There should be no headspace in the sample containers.	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

For selected compounds the mean percent relative standard deviation (%RSD) was less than or equal to 15.0% and less than or equal to 30.0% for individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The mean percent difference (%D) between the initial calibration RRF and the continuing calibration RRF was less than or equal to 20.0% and less than or equal to 25.0% for individual compounds.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:



Date	Compound	%D	Associated Samples	Flag	A or P
4/6/04	Carbon disulfide	36.6	71-S1-031 71-S1-025 71-S1-026 71-S1-027 71-S1-028 MBLKW1	J (all detects) JJ (all non-detects)	A

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

#### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

#### **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

#### **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

#### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

All tentatively identified compounds were within validation criteria.

## **XIV. System Performance**

The system performance was within validation criteria.

## **XV. Overall Assessment of Data**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

Samples 71-S1-026 and 71-S1-027 were identified as field duplicates. No volatiles were detected in any of the samples.

## **XVII. Field Blanks**

Sample 71-S1-031 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Air Field, CTO 71****Volatiles - Data Qualification Summary - SDG 04D010**

SDG	Sample	Compound	Flag	A or P	Reason
04D010	71-S1-025 71-S1-026 71-S1-027	All TCL compounds	J (all detects) UJ (all non-detects)	A	Sample condition
04D010	71-S1-031 71-S1-025 71-S1-026 71-S1-027 71-S1-028	Carbon disulfide	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

**Moffett Air Field, CTO 71****Volatiles - Laboratory Blank Data Qualification Summary - SDG 04D010**

No Sample Data Qualified in this SDG

**MAY 2004**

# CHAIN-OF-CUSTODY RECORD

PROJECT NAME CTO-86-Site 1-2nd Qtr.		PURCHASE ORDER NO. 20848 Task 28		ANALYSES REQUIRED										LABORATORY NAME emax		Project Information Section Do not submit to Laboratory								
PROJECT LOCATION Moffett		PROJECT NO. 1990.0866		<div style="display: flex; justify-content: space-between;"> <div>epa 8260B extended list</div> <div>epa 8270C extended list</div> <div>epa 8081A extended list</div> <div>epa 8082 extended list</div> <div>epa 200.9 D. Metals</div> <div>epa 7470A D. Mercury</div> </div>										LABORATORY ID (FOR LABORATORY) 04E228 (K2403893-metals)										
SAMPLER NAME D. Harrison		SAMPLER SIGNATURE <i>[Signature]</i>																						
PROJECT CONTACT Lisa Bienkowski		AIRBILL NUMBER																						
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		TYPE	T	A	T	T	T	T	T	T	T	T	COMMENTS	LOCATION	DEPTH		QC			
				3	4														START	END				
86-S1-001	5/24/04	1305	11	X		W	10	day	X	X	X	X	X	X	X	X		W1-1			Reg			
86-S1-014	5/24/04	1315	3	X		W	10	day	X	X	X	X	X	X	X	X		Trip Blank			TB			
86-S1-002	5/24/04	1320	11		X	W	10	day	X	X	X	X	X	X	X	X	W1-1	Field Duplicate			FD			
86-S1-003	5/24/04	1410	11	X		W	10	day	X	X	X	X	X	X	X	X		W1-15			Reg			
<div style="font-size: 4em; transform: rotate(-45deg); opacity: 0.5;">             [Large diagonal line across the table]           </div>																								
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE 5/25/04		RECEIVED BY (Signature) <i>[Signature]</i>		LABORATORY INSTRUCTIONS/COMMENTS Metals + Mercury were field filtered																SAMPLING COMMENT: Site 1 2nd <del>Q1</del> / 04  Q2/04		
COMPANY Tetra Tech		TIME 1:00		COMPANY		COMPOSITE DESCRIPTION																		
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)																				
COMPANY		TIME		COMPANY																				
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)																		
COMPANY		TIME		COMPANY		TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																		

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04E228

**SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS**

Four (4) water samples were received on 05/26/04 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analytical holding time was met except E228-04. Sample was labeled preserved with HCL but pH check was at 7.

2. Tuning and Calibration

Tuning and calibration were carried out at 12 hours interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

```

=====
Client   : TETRA TECH FW, INC.      Date Collected: 05/24/04
Project  : MFA, SITE 1, CTO 86     Date Received: 05/26/04
Batch No.: 04E228                  Date Extracted: 06/02/04 07:28
Sample ID: 86-S1-001              Date Analyzed: 06/02/04 07:28
Lab Samp ID: E228-01              Dilution Factor: 1
Lab File ID: RFB027               Matrix : WATER
Ext Btch ID: V003F04              % Moisture : NA
Calib. Ref.: REB756               Instrument ID : T-003
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.3
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.1
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.5
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.5
ACETONE	ND	10	.5
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	.54	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	129	62-139
TOLUENE-D8	101	75-125
BROMOFLUOROBENZENE	91	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

2004

SW 50308/8260B  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 05/24/04  
Project : MFA, SITE 1, CTO 86 Date Received: 05/26/04  
Batch No. : 04E228 Date Extracted: 06/02/04 06:49  
Sample ID: 86-S1-014 Date Analyzed: 06/02/04 06:49  
Lab Samp ID: E228-02 Dilution Factor: 1  
Lab File ID: RFB026 Matrix : WATER  
Ext Btch ID: V003F04 % Moisture : NA  
Calib. Ref.: REB756 Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.2	.1
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.1
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.1
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	111	62-139
TOLUENE-D8	106	75-125
BROMOFLUOROBENZENE	102	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

6 2005



SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH FW, INC.      Date Collected: 05/24/04
Project      : MFA, SITE 1, CTO 86     Date Received: 05/26/04
Batch No.    : 04E228                  Date Extracted: 06/02/04 08:06
Sample ID    : 86-S1-002                Date Analyzed: 06/02/04 08:06
Lab Samp ID  : E228-03                  Dilution Factor: 1
Lab File ID  : RFB028                   Matrix: WATER
Ext Btch ID  : V003F04                  % Moisture: NA
Calib. Ref.  : REB756                   Instrument ID: T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.2	.1
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.1	.2
BROMOMETHANE	ND	.1	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.1	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.1	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.1	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.1	.2
METHYLENE CHLORIDE	ND	.2	.1
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	.71	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.1	.2
VINYL CHLORIDE	ND	.1	.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	126	62-139	
TOLUENE-D8	107	75-125	
BROMOFLUOROBENZENE	96	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

2006

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 05/24/04  
Project : MFA, SITE 1, CTO 86 Date Received: 05/26/04  
Batch No. : 04E228 Date Extracted: 06/02/04 08:44  
Sample ID: 86-S1-003 Date Analyzed: 06/02/04 08:44  
Lab Samp ID: E228-04 Dilution Factor: 1  
Lab File ID: RF8029 Matrix: WATER  
Ext Btch ID: V003F04 % Moisture: NA  
Calib. Ref.: REB756 Instrument ID: T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	5
1,1,1-TRICHLOROETHANE	ND	5	5
1,1,2,2-TETRACHLOROETHANE	ND	1	5
1,1,2-TRICHLOROETHANE	ND	5	5
1,1-DICHLOROETHANE	ND	5	5
1,1-DICHLOROETHENE	ND	5	5
1,1-DICHLOROPROPENE	ND	5	5
1,2,3-TRICHLOROBENZENE	ND	5	5
1,2,3-TRICHLOROPROPANE	ND	5	5
1,2,4-TRICHLOROBENZENE	ND	5	5
1,2,4-TRIMETHYLBENZENE	ND	5	5
1,2-DIBROMO-3-CHLOROPROPANE	ND	2	1
1,2-DICHLOROBENZENE	ND	5	5
1,2-DICHLOROETHANE	ND	5	5
1,2-DICHLOROPROPANE	ND	5	5
1,3,5-TRIMETHYLBENZENE	ND	5	5
1,3-DICHLOROBENZENE	ND	5	5
1,3-DICHLOROPROPANE	ND	5	5
1,4-DICHLOROBENZENE	ND	5	5
2,2-DICHLOROPROPANE	ND	5	5
2-BUTANONE	ND	10	5
2-CHLOROTOLUENE	ND	5	5
2-HEXANONE	ND	10	1
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	ND	10	1
ACETONE	ND	10	5
BENZENE	ND	5	5
BROMOBENZENE	ND	5	5
BROMOCHLOROMETHANE	ND	5	5
BROMODICHLOROMETHANE	ND	5	5
BROMOFORM	ND	1	5
BROMOMETHANE	ND	1	5
CARBON DISULFIDE	.24 J	5	5
CARBON TETRACHLORIDE	ND	5	5
CHLOROBENZENE	ND	5	5
CHLOROETHANE	ND	1	5
CHLOROFORM	ND	5	5
CHLOROMETHANE	ND	1	5
CIS-1,2-DICHLOROETHENE	ND	5	5
CIS-1,3-DICHLOROPROPENE	ND	5	5
DIBROMOCHLOROMETHANE	ND	5	5
DIBROMOMETHANE	ND	5	5
DICHLORODIFLUOROMETHANE	ND	1	5
ETHYLBENZENE	ND	5	5
HEXACHLOROBUTADIENE	ND	5	5
ISOPROPYL BENZENE	ND	5	5
M/P-XYLENES	ND	1	5
METHYLENE CHLORIDE	ND	2	1
N-BUTYLBENZENE	ND	5	5
N-PROPYLBENZENE	ND	5	5
NAPHTHALENE	ND	5	5
O-XYLENE	ND	5	5
P-ISOPROPYLTOLUENE	ND	5	5
SEC-BUTYLBENZENE	ND	5	5
STYRENE	ND	5	5
TERT-BUTYLBENZENE	ND	5	5
TETRACHLOROETHYLENE	ND	5	5
TOLUENE	ND	5	5
TRANS-1,2-DICHLOROETHENE	ND	5	5
TRANS-1,3-DICHLOROPROPENE	ND	5	5
TRICHLOROETHENE	ND	5	5
TRICHLOROFLUOROMETHANE	ND	1	5
VINYL CHLORIDE	ND	1	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	126	62-139
TOLUENE-D8	102	75-125
BROMOFLUOROBENZENE	98	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04E228

**SW 3520C/8270C**  
**SEMI VOLATILE ORGANICS BY GC/MS**

Three (3) water samples were received on 05/26/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> edition.

1. Holding Time  
Analytical holding time was met.
2. Tuning and Calibration  
Tuning and calibration were carried out at 12 hours interval. All QC requirements were met.
3. Method Blank  
Method blank was free of contamination at the reporting limit.
4. Surrogate Recovery  
Recoveries were within QC limits.
5. Lab Control Sample/Lab Control Sample Duplicate  
All recoveries were within QC limits.
6. Matrix Spike/Matrix Spike Duplicate  
No MS/MSD sample was designated in this SDG.
7. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 05/24/04  
Project : MFA, SITE 1, CTO 86 Date Received: 05/26/04  
Batch No. : 04E228 Date Extracted: 05/26/04 16:00  
Sample ID: 86-S1-001 Date Analyzed: 06/04/04 20:56  
Lab Samp ID: E228-01 Dilution Factor: .94  
Lab File ID: RFK067 Matrix : WATER  
Ext Btch ID: SVE029W % Moisture : NA  
Calib. Ref.: REK313 Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	61	25-134
2-FLUOROBIPHENYL	44	43-125
2-FLUOROPHENOL	42	25-125
NITROBENZENE-D5	45	36-125
PHENOL-D5	47	25-125
TERPHENYL-D14	67	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/24/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/25/04
Batch No. : 04E228	Date Extracted: 05/26/04 16:00
Sample ID: 86-S1-002	Date Analyzed: 06/04/04 21:26
Lab Samp ID: E228-03	Dilution Factor: .94
Lab File ID: RFK068	Matrix: WATER
Ext. Btch ID: SVE029W	% Moisture: NA
Calib. Ref.: REK313	Instrument ID: T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	5.6
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,5-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	6.7
BIS(2-ETHYLHEXYL)PHTHALATE	42	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	6.2J	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	73	25-134
2-FLUOROBIPHENYL	61	43-125
2-FLUOROPHENOL	37	25-125
NITROBENZENE-D5	84	36-125
PHENOL-D5	60	42-125
TERPHENYL-D14	67	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/24/04
Project : MFA SITE 1, CTO 86	Date Received: 05/26/04
Batch No. : 04E228	Date Extracted: 05/26/04 16:00
Sample ID : 86-S1-003	Date Analyzed: 06/04/04 21:56
Lab Samp ID: E228-04	Dilution Factor: .94
Lab File ID: RFE069	Matrix : WATER
Ext Btch ID: SVE029W	% Moisture : NA
Calib. Ref.: REK313	Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,6-DINITROPHENOL	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	64	25-134
2-FLUOROBIPHENYL	48	23-125
2-FLUOROPHENOL	37	25-125
NITROBENZENE-D5	39	25-125
PHENOL-D5	45	25-125
TERPHENYL-D14	59	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

**CASE NARRATIVE****CLIENT:** TETRA TECH FW, INC.**PROJECT:** MFA, SITE 1, CTO 86**SDG:** 04E228**SW3520C/8081A  
PESTICIDES**

Three (3) water samples were received on 05/26/04 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and mean recoveries were within 85-115%.

Endrin and DDT breakdown were within QC limits.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limits.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 05/24/04
Project     : MFA, SITE 1, CTO 86      Date Received: 05/26/04
Batch No.   : 04E228                  Date Extracted: 05/27/04 16:00
Sample ID   : 86-S1-001               Date Analyzed: 06/02/04 17:21
Lab Samp ID : E228-01                 Dilution Factor: .94
Lab File ID : SF02012A                Matrix          : WATER
Ext Btch ID : CPE026W                 % Moisture       : NA
Calib. Ref. : SF02003A                Instrument ID    : GCT008
=====

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PARAMETERS	RESULTS (ug/L)		RL (ug/L)	MDL (ug/L)
-----	-----		-----	-----
ALPHA-BHC	(ND)	ND	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND)	ND	.047	.0094 .0094
BETA-BHC	(ND)	ND	.047	.0094 .0094
HEPTACHLOR	(ND)	ND	.047	.0094 .0094
DELTA-BHC	(ND)	ND	.047	.0094 .0094
ALDRIN	(ND)	ND	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND)	ND	.047	.0094 .0094
GAMMA-CHLORDANE	.015J	(ND)	.047	.0094 .0094
ALPHA-CHLORDANE	(ND)	ND	.047	.0094 .0094
ENDOSULFAN I	(ND)	ND	.047	.028 .028
4,4'-DDE	(ND)	ND	.094	.028 .028
DIELDRIN	(ND)	ND	.19	.094 .094
ENDRIN	(ND)	ND	.094	.019 .019
4,4'-DDD	(ND)	ND	.094	.028 .028
ENDOSULFAN II	(ND)	ND	.094	.019 .019
4,4'-DDT	(ND)	ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND)	ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND)	ND	.094	.019 .019
ENDRIN KETONE	(ND)	ND	.094	.019 .019
METHOXYCHLOR	(ND)	ND	.47	.094 .094
TOXAPHENE	(ND)	ND	2.8	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY		QC LIMIT	
-----	-----		-----	
TETRACHLORO-M-XYLENE	(73)	71	30-130	
DECACHLOROBIPHENYL	(79)	70	30-130	

RL : Reporting limit

Left of | is related to first column ; Right of | related to second column  
( ) included the reported column



SW3520C/8081A  
PESTICIDES

```
=====
Client      : TETRA TECH FW, INC.      Date Collected: 05/24/04
Project     : MFA, SITE 1, CTO 86      Date Received: 05/26/04
Batch No.   : 04E228                   Date Extracted: 05/27/04 16:00
Sample ID: 86-S1-002                   Date Analyzed: 06/02/04 17:46
Lab Samp ID: E228-03                   Dilution Factor: .94
Lab File ID: SF02013A                  Matrix          : WATER
Ext Btch ID: CPE026W                   % Moisture       : NA
Calib. Ref.: SF02003A                  Instrument ID    : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.047	.0094   .0094
GAMMA-BHC (LINDANE)	(ND)   ND	.047	.0094   .0094
BETA-BHC	(ND)   ND	.047	.0094   .0094
HEPTACHLOR	(ND)   ND	.047	.0094   .0094
DELTA-BHC	(ND)   ND	.047	.0094   .0094
ALDRIN	(ND)   ND	.047	.0094   .0094
HEPTACHLOR EPOXIDE	(ND)   ND	.047	.0094   .0094
GAMMA-CHLORDANE	.014   (ND)	.047	.0094   .0094
ALPHA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ENDOSULFAN I	(ND)   ND	.047	.028   .028
4,4'-DDE	(ND)   ND	.094	.028   .028
DIELDRIN	(ND)   ND	.19	.094   .094
ENDRIN	(ND)   ND	.094	.019   .019
4,4'-DDD	(ND)   ND	.094	.028   .028
ENDOSULFAN II	(ND)   ND	.094	.019   .019
4,4'-DDT	(ND)   ND	.094	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.094	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.094	.019   .019
ENDRIN KETONE	(ND)   ND	.094	.019   .019
METHOXYCHLOR	(ND)   ND	.47	.094   .094
TOXAPHENE	(ND)   ND	2.8	1.2   1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(85)   83	30-130
DECACHLOROBIPHENYL	(82)   73	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
 PESTICIDES

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 05/24/04
Project      : MFA, SITE 1, CTO 86      Date Received: 05/26/04
Batch No.    : 04E228                   Date Extracted: 05/27/04 16:00
Sample ID    : 86-S1-003                Date Analyzed: 06/02/04 18:11
Lab Samp ID  : E228-04                  Dilution Factor: .94
Lab File ID  : SF02014A                 Matrix          : WATER
Ext Btch ID  : CPE026W                  % Moisture       : NA
Calib. Ref.  : SF02003A                 Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(.061)   .012J	.047	.0094   .0094
GAMMA-BHC (LINDANE)	.025J   (ND)	.047	.0094   .0094
BETA-BHC	.013J   (.38)	.047	.0094   .0094
HEPTACHLOR	(ND)   ND	.047	.0094   .0094
DELTA-BHC	(ND)   ND	.047	.0094   .0094
ALDRIN	(ND)   ND	.047	.0094   .0094
HEPTACHLOR EPOXIDE	(ND)   ND	.047	.0094   .0094
GAMMA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ALPHA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ENDOSULFAN I	(ND)   ND	.047	.028   .028
4,4'-DDE	(ND)   ND	.094	.028   .028
DIELDRIN	(ND)   ND	.19	.094   .094
ENDRIN	(ND)   ND	.094	.019   .019
4,4'-DDD	(ND)   ND	.094	.028   .028
ENDOSULFAN II	(ND)   ND	.094	.019   .019
4,4'-DDT	(ND)   ND	.094	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.094	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.094	.019   .019
ENDRIN KETONE	(ND)   ND	.094	.019   .019
METHOXYCHLOR	(ND)   ND	.47	.094   .094
TOXAPHENE	(ND)   ND	2.8	1.2   1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	95   (98)	30-130
DECACHLOROBIPHENYL	(89)   78	30-130

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04E228

**SW3520C/8082**  
**PCBs**

Three (3) water samples were received on 05/26/04 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was at five-point for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and mean recoveries were within 85-115%.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 05/24/04
Project     : MFA, SITE 1, CTO 86      Date Received: 05/26/04
Batch No.   : 04E228                  Date Extracted: 05/27/04 16:00
Sample ID: 86-S1-001                  Date Analyzed: 06/02/04 17:21
Lab Samp ID: E228-01                  Dilution Factor: .94
Lab File ID: SF02012A                 Matrix          : WATER
Ext Btch ID: CPE026W                  % Moisture       : NA
Calib. Ref.: SF02006A                 Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(68)   66	30-130
DECACHLOROBIPHENYL	(83)   75	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 05/24/04
Project     : MFA, SITE 1, CTO 86      Date Received: 05/26/04
Batch No.   : 04E228                   Date Extracted: 05/27/04 16:00
Sample ID   : 86-S1-002                 Date Analyzed: 06/02/04 17:46
Lab Samp ID : E228-03                   Dilution Factor: .94
Lab File ID : SF02013A                  Matrix          : WATER
Ext Btch ID : CPE026W                   % Moisture       : NA
Calib. Ref. : SF02006A                  Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(79) 78	30-130
DECACHLOROBIPHENYL	(88) 78	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```
=====
Client   : TETRA TECH FW, INC.      Date Collected: 05/24/04
Project  : MFA, SITE 1, CTO 86      Date Received: 05/26/04
Batch No. : 04E228                  Date Extracted: 05/27/04 16:00
Sample ID: 86-S1-003                Date Analyzed: 06/02/04 18:11
Lab Samp ID: E228-04                Dilution Factor: .94
Lab File ID: SF02014A               Matrix       : WATER
Ext Btch ID: CPE026W                % Moisture    : NA
Calib. Ref.: SF02006A               Instrument ID : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(87)   90	30-130
DECACHLOROBIPHENYL	(96)   84	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04E228

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Three (3) water samples were received on 05/26/04 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analysis met the holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within the control limits.

4. Serial Dilution

Sample E241-01 from another SDG was analyzed for serial dilution. % Difference was not evaluated since diluted sample result was not detected. Analytical spike was performed and met the QC limits.

5. Matrix Spike/Matrix Spike Duplicate

MS/MSD sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were diluted out due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 04E228

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLKW	HGF008WB	ND	1	NA	.2	.1	06/08/0410:49	06/07/0415:00	M47F009010	M47F009008	HGF008W	NA	06/07/04
LCSIW	HGF008WL	4.72	1	NA	.2	.1	06/08/0410:52	06/07/0415:00	M47F009011	M47F009008	HGF008W	NA	06/07/04
LCDIW	HGF008WC	4.76	1	NA	.2	.1	06/08/0410:54	06/07/0415:00	M47F009012	M47F009008	HGF008W	NA	06/07/04
86-SI-001	E228-01	ND	20	NA	4	2	06/08/0412:45	06/07/0415:00	M47F009063	M47F009054	HGF008W	05/24/04	05/26/04
86-SI-002	E228-03	ND	20	NA	4	2	06/08/0412:47	06/07/0415:00	M47F009064	M47F009054	HGF008W	05/24/04	05/26/04
86-SI-003	E228-04	ND	20	NA	4	2	06/08/0412:54	06/07/0415:00	M47F009067	M47F009065	HGF008W	05/24/04	05/26/04

RL: Reporting Limit

7003



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86

**Collection Date:** May 24, 2004

**LDC Report Date:** July 6, 2004

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E228

**Sample Identification**

86-S1-001

86-S1-002\*\*

86-S1-003

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample was not required by the method.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-010MS/MSD (All samples in SDG 04E228)	Mercury	66 (75-125)	64 (75-125)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

Samples 86-S1-001 and 86-S1-002\*\* were identified as field duplicates. No mercury was detected in any of the samples.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 04E228**

SDG	Sample	Analyte	Flag	A or P	Reason
04E228	86-S1-001 86-S1-002** 86-S1-003	Mercury	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Airfield, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 04E228**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** May 24, 2004  
**LDC Report Date:** July 1, 2004  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E228

**Sample Identification**

86-S1-001  
86-S1-002\*\*  
86-S1-003

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.



## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-001 and 86-S1-002\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 04E228**

No Sample Data Qualified in this SDG

**Moffett Airfield, CTO 86**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 04E228**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86

**Collection Date:** May 24, 2004

**LDC Report Date:** July 2, 2004

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E228

**Sample Identification**

86-S1-001

86-S1-002\*\*

86-S1-003

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## **III. Initial Calibration**

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **XIV. Field Duplicates**

Samples 86-S1-001 and 86-S1-002\*\* were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.



**Moffett Airfield, CTO 86**

**Chlorinated Pesticides - Data Qualification Summary - SDG 04E228**

No Sample Data Qualified in this SDG

**Moffett Airfield, CTO 86**

**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 04E228**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Field, CTO 86  
**Collection Date:** May 24, 2004  
**LDC Report Date:** July 2, 2004  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E228

**Sample Identification**

86-S1-001  
86-S1-002\*\*  
86-S1-003

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for selected compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The mean percent difference (%D) between the initial calibration RRF and the continuing calibration RRF was less than or equal to 20.0% and less than or equal to 25.0% for individual compounds.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-001 and 86-S1-002\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-S1-001	86-S1-002**	
Caprolactam	9.4U	6.2	Not calculable
Bis(2-ethylhexyl)phthalate	19U	42	Not calculable

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Field, CTO 86**

**Semivolatiles - Data Qualification Summary - SDG 04E228**

No Sample Data Qualified in this SDG

**Moffett Field, CTO 86**

**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04E228**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86

**Collection Date:** May 24, 2004

**LDC Report Date:** July 2, 2004

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E228

**Sample Identification**

86-S1-001

86-S1-014

86-S1-002\*\*

86-S1-003

\*\*Indicates sample underwent EPA Level IV review



## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
86-S1-003	All TCL compounds	9	7	J (all detects) UJ (all non-detects)	P

All samples were received in good condition with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-S1-003	All TCL compounds	Air bubbles were apparent in the sample containers.	There should be no air bubbles in the sample containers.	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) was less than or equal to 15.0% and less than or equal to 30.0% for individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected samples. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The mean percent difference (%D) between the initial calibration RRF and the continuing calibration RRF was less than or equal to 20.0% and less than or equal to 25.0% for individual compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/2/04	Dichlorodifluoromethane	37.1	All samples in SDG 04E228	J (all detects) UJ (all non-detects)	A

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/27/04	Chloromethane Vinyl chloride 1,1-Dichloropropene n-Butylbenzene	25.0 20.6 23.8 22.1	All samples in SDG 04E228	J (all detects) UJ (all non-detects)	P

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment of Data**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

Samples 86-S1-001 and 86-S1-002\*\* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-S1-001	86-S1-002**	
Toluene	0.54	0.71	27

## **XVII. Field Blanks**

Sample 86-S1-014 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Airfield, CTO 86****Volatiles - Data Qualification Summary - SDG 04E228**

SDG	Sample	Compound	Flag	A or P	Reason
04E228	86-S1-003	All TCL compounds	J (all detects) UJ (all non-detects)	P	Technical holding times
04E228	86-S1-003	All TCL compounds	J (all detects) UJ (all non-detects)	A	Sample condition
04E228	86-S1-001 86-S1-014 86-S1-002** 86-S1-003	Dichlorodifluoromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04E228	86-S1-001 86-S1-014 86-S1-002** 86-S1-003	Chloromethane Vinyl chloride 1,1-Dichloropropene n-Butylbenzene	J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D)

**Moffett Airfield, CTO 86****Volatiles - Laboratory Blank Data Qualification Summary - SDG 04E228**

No Sample Data Qualified in this SDG



## CHAIN-OF-CUSTODY RECORD

PROJECT NAME CTO 86- Site 1- 2nd Qtr.		PURCHASE ORDER NO. # 20848- Task 28		ANALYSES REQUIRED										LABORATORY NAME EMAX		Project Information Section Do not submit to Laboratory					
PROJECT LOCATION Mullett		PROJECT NO. 1990.086E												LABORATORY ID (FOR LABORATORY) 046241 (K2403969) metal							
SAMPLER NAME J. Harrison		SAMPLER SIGNATURE <i>[Signature]</i>																			
PROJECT CONTACT Lisa Sienkowski		AIRBILL NUMBER 840692054106																			
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		TYPE	T A T	EPA 8260B extended list	EPA 8260C extended list	EPA 8081A extended list	EPA 8082 extended list	EPA 200.8 Dis. Metals	EPA 1710A Dis. Mercury	COMMENTS	LOCATION	DEPTH		QC			
				3	4											START	END				
86-S1-004	5/25/04	1025	11	X		W	day	X	X	X	X	X	X		W1-19			Reg			
86-S1-015	5/25/04	1010	3	X		W	day	X	X	X	X	X	X		Trip Blank			Reg			
86-S1-006	5/25/04	1115	11	X		W	day	X	X	X	X	X	X		W1-14			Reg			
86-S1-007	5/25/04	1130	11	X		W	day	X	X	X	X	X	X		Field Duplicate W1-14			Reg			
86-S1-008	5/25/04	1340	11	X		W	day	X	X	X	X	X	X		W1-12R			Reg			
86-S1-009	5/26/04	0800	11	X		W	day	X	X	X	X	X	X		W1-22			Reg			
<div style="font-size: 2em; transform: rotate(-45deg); opacity: 0.5;">             EX           </div>																					
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE 5/26/04		RECEIVED BY (Signature) FLOX		LABORATORY INSTRUCTIONS/COMMENTS Mercury + Metals were field filtered													SAMPLING COMMENT: Site 1 2nd Qtr. / 04 Q2/04		
COMPANY HFW		TIME 1300		COMPANY																	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		COMPOSITE DESCRIPTION															
COMPANY		TIME		COMPANY																	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)															
COMPANY		TIME		COMPANY		TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN															

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04E241

**SW 5030B/8260B**  
**VOLATILE ORGANICS BY GC/MS**

Six (6) water samples were received on 05/27/04 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> edition.

1. Holding Time

Samples E241-01, -03, -04 and -06 had HCL preserved label but pH check were at 7. They were analyzed on the 8<sup>th</sup> day after sampling, one day out of holding time for unpreserved samples.

2. Tuning and Calibration

Tuning and calibration were carried out at 12 hours interval. All QC requirements were met.

3. Method Blank

Method blanks were free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.



SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH FW, INC.      Date Collected: 05/25/04
Project      : MFA, SITE 1, CTO 86     Date Received: 05/27/04
Batch No.    : 04E241                  Date Extracted: 06/02/04 09:23
Sample ID    : 86-S1-004               Date Analyzed: 06/02/04 09:23
Lab Samp ID  : E241-01                 Dilution Factor: 1
Lab File ID  : RFB030                  Matrix          : WATER
Ext Btch ID  : V003FD4                 % Moisture       : NA
Calib. Ref.  : REB756                  Instrument ID    : T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	5	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	5	2
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	ND	5	2
ACETONE	ND	5	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	133	62-139
TOLUENE-D8	100	75-125
BROMOFLUOROBENZENE	93	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

2004

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 05/25/04  
Project : MFA, SITE 1, CTO 86 Date Received: 05/27/04  
Batch No. : 04E241 Date Extracted: 06/01/04 10:07  
Sample ID: 86-S1-015 Date Analyzed: 06/01/04 10:07  
Lab Samp ID: E241-02 Dilution Factor: 1  
Lab File ID: REB959 Matrix : WATER  
Ext Btch ID: V003E95 % Moisture : NA  
Calib. Ref.: REB756 Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	1	2
1,1,2-TRICHLOROETHANE	ND	1	2
1,1-DICHLOROETHANE	ND	1	2
1,1-DICHLOROETHENE	ND	1	2
1,1-DICHLOROPROPENE	ND	1	2
1,2,3-TRICHLOROBENZENE	ND	1	2
1,2,3-TRICHLOROPROPANE	ND	1	2
1,2,4-TRICHLOROBENZENE	ND	1	2
1,2,4-TRIMETHYLBENZENE	ND	1	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	2
1,2-DICHLOROBENZENE	ND	1	2
1,2-DICHLOROETHANE	ND	1	2
1,2-DICHLOROPROPANE	ND	1	2
1,3,5-TRIMETHYLBENZENE	ND	1	2
1,3-DICHLOROBENZENE	ND	1	2
1,3-DICHLOROPROPANE	ND	1	2
1,4-DICHLOROBENZENE	ND	1	2
2,2-DICHLOROPROPANE	ND	1	2
2-BUTANONE	ND	1	2
2-CHLOROTOLUENE	ND	1	2
2-HEXANONE	ND	1	2
4-CHLOROTOLUENE	ND	1	2
4-METHYL-2-PENTANONE	ND	1	2
ACETONE	ND	1	2
BENZENE	ND	1	2
BROMOBENZENE	ND	1	2
BROMOCHLOROMETHANE	ND	1	2
BROMODICHLOROMETHANE	ND	1	2
BROMOFORM	ND	1	2
BROMOMETHANE	ND	1	2
CARBON DISULFIDE	ND	1	2
CARBON TETRACHLORIDE	ND	1	2
CHLOROBENZENE	ND	1	2
CHLOROETHANE	ND	1	2
CHLOROPROPANE	ND	1	2
CIS-1,2-DICHLOROETHENE	ND	1	2
CIS-1,3-DICHLOROPROPENE	ND	1	2
DIBROMOCHLOROMETHANE	ND	1	2
DIBROMOMETHANE	ND	1	2
DICHLORODIFLUOROMETHANE	ND	1	2
ETHYLBENZENE	ND	1	2
HEXACHLOROBUTADIENE	ND	1	2
ISOPROPYL BENZENE	ND	1	2
M/P-XYLENES	ND	1	2
METHYLENE CHLORIDE	ND	1	2
N-BUTYLBENZENE	ND	1	2
N-PROPYLBENZENE	ND	1	2
NAPHTHALENE	ND	1	2
O-XYLENE	ND	1	2
P-ISOPROPYLTOLUENE	ND	1	2
SEC-BUTYLBENZENE	ND	1	2
STYRENE	ND	1	2
TERT-BUTYLBENZENE	ND	1	2
TETRACHLOROETHYLENE	ND	1	2
TOLUENE	ND	1	2
TRANS-1,2-DICHLOROETHENE	ND	1	2
TRANS-1,3-DICHLOROPROPENE	ND	1	2
TRICHLOROETHENE	ND	1	2
TRICHLOROFLUOROMETHANE	ND	1	2
VINYL CHLORIDE	ND	1	2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	118	62-139	
TOLUENE-D8	109	75-125	
BROMOFLUOROBENZENE	96	75-125	

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

2005

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 05/25/04  
Project : MFA SITE 1, CTO 86 Date Received: 05/27/04  
Batch No. : 04E241 Date Extracted: 06/02/04 10:01  
Sample ID: 86-S1-006 Date Analyzed: 06/02/04 10:01  
Lab Samp ID: E241-03 Dilution Factor: 1  
Lab File ID: RFB031 Matrix : WATER  
Ext Btch ID: V003F04 % Moisture : NA  
Calib. Ref.: REB756 Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.1	.3
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	.5	.2
ACETONE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	129	62-139
TOLUENE-D8	101	75-125
BROMOFLUOROBENZENE	99	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

2006

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/25/04
Project : MFA, SITE 1, CTD 86	Date Received: 05/27/04
Batch No. : 04E241	Date Extracted: 06/02/04 11:19
Sample ID: 86-S1-007	Date Analyzed: 06/02/04 11:19
Lab Samp ID: E241-04	Dilution Factor: 1
Lab File ID: RFB033	Matrix : WATER
Ext Btch ID: V003F04	% Moisture : NA
Calib. Ref.: REB756	Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	ND
1,1,1-TRICHLOROETHANE	ND	5	ND
1,1,2,2-TETRACHLOROETHANE	ND	1	ND
1,1,2-TRICHLOROETHANE	ND	1	ND
1,1-DICHLOROETHANE	ND	1	ND
1,1-DICHLOROETHENE	ND	1	ND
1,1-DICHLOROPROPENE	ND	1	ND
1,2,3-TRICHLOROBENZENE	ND	1	ND
1,2,3-TRICHLOROPROPANE	ND	1	ND
1,2,4-TRICHLOROBENZENE	ND	1	ND
1,2,4-TRIMETHYLBENZENE	ND	1	ND
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	ND
1,2-DICHLOROBENZENE	ND	1	ND
1,2-DICHLOROETHANE	ND	1	ND
1,2-DICHLOROPROPANE	ND	1	ND
1,3,5-TRIMETHYLBENZENE	ND	1	ND
1,3-DICHLOROBENZENE	ND	1	ND
1,3-DICHLOROPROPANE	ND	1	ND
1,4-DICHLOROBENZENE	ND	1	ND
2,2-DICHLOROPROPANE	ND	1	ND
2-BUTANONE	ND	1	ND
2-CHLOROTOLUENE	ND	1	ND
2-HEXANONE	ND	1	ND
4-CHLOROTOLUENE	ND	1	ND
4-METHYL-2-PENTANONE	ND	1	ND
ACETONE	ND	1	ND
BENZENE	ND	1	ND
BROMOBENZENE	ND	1	ND
BROMOCHLOROMETHANE	ND	1	ND
BROMODICHLOROMETHANE	ND	1	ND
BROMOFORM	ND	1	ND
BROMOMETHANE	ND	1	ND
CARBON DISULFIDE	ND	1	ND
CARBON TETRACHLORIDE	ND	1	ND
CHLOROBENZENE	ND	1	ND
CHLOROETHANE	ND	1	ND
CHLOROFORM	ND	1	ND
CHLOROMETHANE	ND	1	ND
CIS-1,2-DICHLOROETHENE	ND	1	ND
CIS-1,3-DICHLOROPROPENE	ND	1	ND
DIBROMOCHLOROMETHANE	ND	1	ND
DIBROMOMETHANE	ND	1	ND
DICHLORODIFLUOROMETHANE	ND	1	ND
ETHYLBENZENE	ND	1	ND
HEXACHLOROBUTADIENE	ND	1	ND
ISOPROPYL BENZENE	ND	1	ND
M/P-XYLENES	ND	1	ND
METHYLENE CHLORIDE	ND	1	ND
N-BUTYLBENZENE	ND	1	ND
N-PROPYLBENZENE	ND	1	ND
NAPHTHALENE	ND	1	ND
O-XYLENE	ND	1	ND
P-ISOPROPYLTOLUENE	ND	1	ND
SEC-BUTYLBENZENE	ND	1	ND
STYRENE	ND	1	ND
TERT-BUTYLBENZENE	ND	1	ND
TETRACHLOROETHYLENE	ND	1	ND
TOLUENE	ND	1	ND
TRANS-1,2-DICHLOROETHENE	ND	1	ND
TRANS-1,3-DICHLOROPROPENE	ND	1	ND
TRICHLOROETHENE	ND	1	ND
TRICHLOROFLUOROMETHANE	ND	1	ND
VINYL CHLORIDE	ND	1	ND

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	131	62-139
TOLUENE-D8	109	75-125
BROMOFLUOROBENZENE	90	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 04E241  
Sample ID: 86-S1-008  
Lab Samp ID: E241-05  
Lab File ID: RFB034  
Ext Btch ID: V003F04  
Calib. Ref.: REB756  
Date Collected: 05/25/04  
Date Received: 05/27/04  
Date Extracted: 06/02/04 11:57  
Date Analyzed: 06/02/04 11:57  
Dilution Factor: 1  
Matrix: WATER  
% Moisture: NA  
Instrument ID: T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	.5	.2
ACETONE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLOROFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	132	62-139
TOLUENE-D8	101	75-125
BROMOFLUOROBENZENE	94	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/27/04
Batch No. : 04E241	Date Extracted: 06/02/04 12:35
Sample ID: 86-S1-009	Date Analyzed: 06/02/04 12:35
Lab Samp ID: E241-06	Dilution Factor: 1
Lab File ID: RFB035	Matrix : WATER
Ext Btch ID: V003F04	% Moisture : NA
Calib. Ref.: REB756	Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	1.5	1.5
1,1,1-TRICHLOROETHANE	ND	1.5	1.5
1,1,2,2-TETRACHLOROETHANE	ND	1.5	1.5
1,1,2-TRICHLOROETHANE	ND	1.5	1.5
1,1-DICHLOROETHANE	ND	1.5	1.5
1,1-DICHLOROETHENE	ND	1.5	1.5
1,1-DICHLOROPROPENE	ND	1.5	1.5
1,2,3-TRICHLOROBENZENE	ND	1.5	1.5
1,2,3-TRICHLOROPROPANE	ND	1.5	1.5
1,2,4-TRICHLOROBENZENE	ND	1.5	1.5
1,2,4-TRIMETHYLBENZENE	ND	1.5	1.5
1,2-DIBROMO-3-CHLOROPROPANE	ND	1.5	1.5
1,2-DICHLOROBENZENE	ND	1.5	1.5
1,2-DICHLOROETHANE	ND	1.5	1.5
1,2-DICHLOROPROPANE	ND	1.5	1.5
1,3,5-TRIMETHYLBENZENE	ND	1.5	1.5
1,3-DICHLOROBENZENE	ND	1.5	1.5
1,3-DICHLOROPROPANE	ND	1.5	1.5
1,4-DICHLOROBENZENE	ND	1.5	1.5
2,2-DICHLOROPROPANE	ND	1.5	1.5
2-BUTANONE	ND	1.5	1.5
2-CHLOROTOLUENE	ND	1.5	1.5
2-HEXANONE	ND	1.5	1.5
4-CHLOROTOLUENE	ND	1.5	1.5
4-METHYL-2-PENTANONE	ND	1.5	1.5
ACETONE	2.91	1.5	1.5
BENZENE	ND	1.5	1.5
BROMOBENZENE	ND	1.5	1.5
BROMOCHLOROMETHANE	ND	1.5	1.5
BROMODICHLOROMETHANE	ND	1.5	1.5
BROMOFORM	ND	1.5	1.5
BROMOMETHANE	ND	1.5	1.5
CARBON DISULFIDE	ND	1.5	1.5
CARBON TETRACHLORIDE	ND	1.5	1.5
CHLOROBENZENE	ND	1.5	1.5
CHLOROETHANE	ND	1.5	1.5
CHLOROFORM	ND	1.5	1.5
CHLOROMETHANE	ND	1.5	1.5
CIS-1,2-DICHLOROETHENE	ND	1.5	1.5
CIS-1,3-DICHLOROPROPENE	ND	1.5	1.5
DIBROMOCHLOROMETHANE	ND	1.5	1.5
DIBROMOMETHANE	ND	1.5	1.5
DICHLORODIFLUOROMETHANE	ND	1.5	1.5
ETHYLBENZENE	ND	1.5	1.5
HEXACHLOROBUTADIENE	ND	1.5	1.5
ISOPROPYL BENZENE	ND	1.5	1.5
M/P-XYLENES	ND	1.5	1.5
METHYLENE CHLORIDE	ND	1.5	1.5
N-BUTYLBENZENE	ND	1.5	1.5
N-PROPYLBENZENE	ND	1.5	1.5
NAPHTHALENE	ND	1.5	1.5
O-XYLENE	ND	1.5	1.5
P-ISOPROPYLTOLUENE	ND	1.5	1.5
SEC-BUTYLBENZENE	ND	1.5	1.5
STYRENE	ND	1.5	1.5
TERT-BUTYLBENZENE	ND	1.5	1.5
TETRACHLOROETHYLENE	ND	1.5	1.5
TOLUENE	ND	1.5	1.5
TRANS-1,2-DICHLOROETHENE	ND	1.5	1.5
TRANS-1,3-DICHLOROPROPENE	ND	1.5	1.5
TRICHLOROETHENE	ND	1.5	1.5
TRICHLOROFLUOROMETHANE	ND	1.5	1.5
VINYL CHLORIDE	ND	1.5	1.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	124	62-139
TOLUENE-D8	99	75-125
BROMOFLUOROBENZENE	94	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04E241

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Five (5) water samples were received on 05/27/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12 hours interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client	: TETRA TECH FW, INC.	Date Collected:	05/25/04
Project	: MFA SITE 1, CTO 86	Date Received:	05/27/04
Batch No.	: 04E241	Date Extracted:	06/01/04 17:00
Sample ID:	86-S1-004	Date Analyzed:	06/07/04 19:21
Lab Samp ID:	E241-01	Dilution Factor:	.94
Lab File ID:	RFK082	Matrix	: WATER
Ext Btch ID:	SVF001W	% Moisture	: NA
Calib. Ref.:	REK313	Instrument ID	: T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHthalate	ND	9.4	4.7
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYClopentadiene	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSO-DIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	73	25-134
2-FLUOROBIPHENYL	51	43-125
2-FLUOROPHENOL	45	25-125
NITROBENZENE-D5	53	32-125
PHENOL-D5	51	25-125
TERPHENYL-D14	66	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine



SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/25/04
Project : MFA SITE 1, CTO 86	Date Received: 05/27/04
Batch No. : 042241	Date Extracted: 06/01/04 17:00
Sample ID : 86-S1-006	Date Analyzed: 06/07/04 19:51
Lab Samp ID: E241-03	Dilution Factor: .94
Lab File ID: RFK083	Matrix : WATER
Ext Btch ID: SVF001W	% Moisture : NA
Calib. Ref.: REK313	Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	64	25-134
2-FLUOROBIPHENYL	47	43-125
2-FLUOROPHENOL	47	25-125
NITROBENZENE-D5	52	25-125
PHENOL-D5	52	25-125
TERPHENYL-D14	64	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 05/25/04  
Project : MFA, SITE 1, CTO 86 Date Received: 05/27/04  
Batch No. : 04E241 Date Extracted: 06/01/04 17:00  
Sample ID: 86-S1-007 Date Analyzed: 06/07/04 20:21  
Lab Samp ID: E241-04 Dilution Factor: .94  
Lab File ID: RFK084 Matrix : WATER  
Ext Btch ID: SVF001W % Moisture : NA  
Calib. Ref.: REK313 Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	5.6
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	73	25-134
2-FLUOROBIPHENYL	52	43-125
2-FLUOROPHENOL	47	25-125
NITROBENZENE-D5	52	32-125
PHENOL-D5	53	25-125
TERPHENYL-D14	69	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/25/04
Project : MFA SITE 1, CTO 86	Date Received: 05/27/04
Batch No. : 04E241	Date Extracted: 06/01/04 17:00
Sample ID: 86-S1-008	Date Analyzed: 06/07/04 20:51
Lab Samp ID: E241-05	Dilution Factor: .94
Lab File ID: RFK085	Matrix : WATER
Ext Btch ID: SVF001W	% Moisture : NA
Calib. Ref.: REK313	Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHthalate	ND	9.4	4.7
D1-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYClopentadiene	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	76	25-134
2-FLUOROBIPHENYL	50	43-125
2-FLUOROPHENOL	43	25-125
NITROBENZENE-D5	50	25-125
PHENOL-D5	50	25-125
TERPHENYL-D14	71	42-126

RL: Reporting Limit

(1): Cannot be separated from 3-Methylphenol

(2): Cannot be separated from Diphenylamine

SW 3520C/B270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA SITE 1, CTO 86	Date Received: 05/27/04
Batch No. : 04E241	Date Extracted: 06/01/04 17:00
Sample ID: 86-S1-009	Date Analyzed: 06/07/04 21:21
Lab Samp ID: E241-06	Dilution Factor: .94
Lab File ID: RFK086	Matrix : WATER
Ext Btch ID: SVF001W	% Moisture : NA
Calib. Ref.: REK313	Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	19	5.6
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	2.3
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	78	25-134
2-FLUOROBIPHENYL	61	43-125
2-FLUOROPHENOL	52	25-125
NITROBENZENE-D5	63	32-125
PHENOL-D5	57	25-125
TERPHENYL-D14	69	42-126

9L: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

**CASE NARRATIVE****CLIENT: TETRA TECH FW, INC.****PROJECT: MFA, SITE 1, CTO 86****SDG: 04E241****SW3520C/8081A  
PESTICIDES**

Five (5) water samples were received on 05/27/04 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and mean recoveries were within 85-115%.

Endrin and DDT breakdown were within QC limits.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limits.

**5. Lab Control Sample/Lab Control Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8081A  
 PESTICIDES

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Client      : TETRA TECH FW, INC.      Date Collected: 05/25/04
Project     : MFA, SITE 1, CTO 86      Date Received: 05/27/04
Batch No.   : 04E241                  Date Extracted: 06/01/04 16:30
Sample ID: 86-S1-004                  Date Analyzed: 06/03/04 04:18
Lab Samp ID: E241-01                  Dilution Factor: .94
Lab File ID: SF02038A                  Matrix      : WATER
Ext Btch ID: CPF001W                  % Moisture   : NA
Calib. Ref.: SF02030A                  Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094 .0094
BETA-BHC	(ND) .053	.047	.0094 .0094
HEPTACHLOR	(ND) ND	.047	.0094 .0094
DELTA-BHC	(ND) ND	.047	.0094 .0094
ALDRIN	(ND) ND	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094 .0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094 .0094
ENDOSULFAN I	(ND) ND	.047	.028 .028
4,4'-DDE	(ND) ND	.094	.028 .028
DIELDRIN	(ND) ND	.19	.094 .094
ENDRIN	(ND) ND	.094	.019 .019
4,4'-DDD	(ND) ND	.094	.028 .028
ENDOSULFAN II	(ND) ND	.094	.019 .019
4,4'-DDT	(ND) ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.094	.019 .019
ENDRIN KETONE	(ND) ND	.094	.019 .019
METHOXYCHLOR	(ND) ND	.47	.094 .094
TOXAPHENE	(ND) ND	2.8	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
-----			
TETRACHLORO-M-XYLENE	83 (88)	30-130	
DECACHLOROBIPHENYL	(74) 68	30-130	

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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Client      : TETRA TECH FW, INC.      Date Collected: 05/25/04
Project     : MFA, SITE 1, CTO 86      Date Received: 05/27/04
Batch No.   : 04E241                  Date Extracted: 06/01/04 16:30
Sample ID   : 86-S1-006               Date Analyzed: 06/03/04 04:43
Lab Samp ID : E241-03                 Dilution Factor: .94
Lab File ID : SF02039A                Matrix          : WATER
Ext Btch ID : CPF001W                 % Moisture       : NA
Calib. Ref. : SF02030A                Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .057	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	.013J (ND)	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(96) 95	30-130
DECACHLOROBIPHENYL	(74) 67	30-130

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

5005

SW3520C/8081A  
PESTICIDES

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Client       : TETRA TECH FW, INC.      Date Collected: 05/25/04
Project      : MFA, SITE 1, CTO 86     Date Received: 05/27/04
Batch No.    : 04E241                  Date Extracted: 06/01/04 16:30
Sample ID    : 86-S1-007               Date Analyzed: 06/03/04 05:09
Lab Samp ID  : E241-04                 Dilution Factor: .94
Lab File ID  : SF02040A                Matrix       : WATER
Ext Btch ID  : CPF001W                 % Moisture    : NA
Calib. Ref.  : SF02030A                Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.047	.0094   .0094
GAMMA-BHC (LINDANE)	(ND)   ND	.047	.0094   .0094
BETA-BHC	(ND)   .06	.047	.0094   .0094
HEPTACHLOR	(ND)   ND	.047	.0094   .0094
DELTA-BHC	(ND)   ND	.047	.0094   .0094
ALDRIN	(ND)   ND	.047	.0094   .0094
HEPTACHLOR EPOXIDE	(ND)   ND	.047	.0094   .0094
GAMMA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ALPHA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ENDOSULFAN I	(ND)   ND	.047	.028   .028
4,4'-DDE	(ND)   ND	.094	.028   .028
DIELDRIN	(ND)   ND	.19	.094   .094
ENDRIN	(ND)   ND	.094	.019   .019
4,4'-DDD	(ND)   ND	.094	.028   .028
ENDOSULFAN II	(ND)   ND	.094	.019   .019
4,4'-DDT	(ND)   ND	.094	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.094	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.094	.019   .019
ENDRIN KETONE	(ND)   ND	.094	.019   .019
METHOXYCHLOR	(ND)   ND	.47	.094   .094
TOXAPHENE	(ND)   ND	2.8	1.2   1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	88   (90)	30-130
DECACHLOROBIPHENYL	(75)   67	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

5006



SW3520C/8081A  
PESTICIDES

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Client       : TETRA TECH FW, INC.      Date Collected: 05/25/04
Project      : MFA, SITE 1, CTO 86      Date Received: 05/27/04
Batch No.    : 04E241                   Date Extracted: 06/01/04 16:30
Sample ID    : 86-S1-008                Date Analyzed: 06/03/04 05:34
Lab Samp ID  : E241-05                   Dilution Factor: .94
Lab File ID  : SFO2041A                  Matrix          : WATER
Ext Btch ID  : CPF001W                    % Moisture       : NA
Calib. Ref.  : SFO2030A                  Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .034J	.047	.0094
HEPTACHLOR	.014J (ND)	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	.012J (ND)	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	52 (53)	30-130
DECACHLOROBIPHENYL	(74) 65	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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Client       : TETRA TECH FW, INC.      Date Collected: 05/26/04
Project      : MFA, SITE 1, CTO 86      Date Received: 05/27/04
Batch No.    : 04E241                   Date Extracted: 06/01/04 16:30
Sample ID    : 86-S1-009                 Date Analyzed: 06/03/04 05:59
Lab Samp ID  : E241-06                   Dilution Factor: .94
Lab File ID  : SF02042A                  Matrix          : WATER
Ext Stch ID  : CPF001W                   % Moisture       : NA
Calib. Ref.  : SF02030A                  Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.039J (ND)	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) .018J	.047	.0094 .0094
BETA-BHC	(ND) .095	.047	.0094 .0094
HEPTACHLOR	.037J (ND)	.047	.0094 .0094
DELTA-BHC	(ND) .035J	.047	.0094 .0094
ALDRIN	.048 (ND)	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) .027J	.047	.0094 .0094
GAMMA-CHLORDANE	.051 (.053)	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094 .0094
ENDOSULFAN I	(ND) ND	.047	.028 .028
4,4'-DDE	.032J (ND)	.094	.028 .028
DIELDRIN	(ND) ND	.19	.094 .094
ENDRIN	(ND) ND	.094	.019 .019
4,4'-DDD	.034J (ND)	.094	.028 .028
ENDOSULFAN II	.023J (ND)	.094	.019 .019
4,4'-DDT	(ND) ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.094	.019 .019
ENDRIN KETONE	(ND) ND	.094	.019 .019
METHOXYCHLOR	(ND) ND	.47	.094 .094
TOXAPHENE	(ND) ND	2.8	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(98) 92	30-130	
DECACHLOROBIPHENYL	64 (117)	30-130	

RL : Reporting limit

 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

**CASE NARRATIVE****CLIENT: TETRA TECH FW, INC.****PROJECT: MFA, SITE 1, CTO 86****SDG: 04E241****SW3520C/8082  
PCBs**

Five (5) water samples were received on 05/27/04 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five-point for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and all recoveries were within 85-115%.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limits.

**5. Lab Control Sample/Lab Control Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8082  
 PCBs

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Client      : TETRA TECH FW, INC.      Date Collected: 05/25/04
Project     : MFA, SITE 1, CTO 86      Date Received: 05/27/04
Batch No.   : 04E241                   Date Extracted: 06/01/04 16:30
Sample ID   : 86-S1-004                 Date Analyzed: 06/03/04 04:18
Lab Samp ID : E241-01                    Dilution Factor: .94
Lab File ID : SF02038A                   Matrix          : WATER
Ext Btch ID : CPF001W                     % Moisture       : NA
Calib. Ref. : SF02033A                     Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(75)   82	30-130
DECACHLOROBIPHENYL	(79)   72	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 05/25/04
Project      : MFA, SITE 1, CTO 86      Date Received: 05/27/04
Batch No.    : 04E241                   Date Extracted: 06/01/04 16:30
Sample ID    : 86-S1-006                 Date Analyzed: 06/03/04 04:43
Lab Samp ID  : E241-03                   Dilution Factor: .94
Lab File ID  : SF02039A                  Matrix          : WATER
Ext Btch ID  : CPF001W                    % Moisture       : NA
Calib. Ref.  : SF02033A                  Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(88)   89	30-130
DECACHLOROBIPHENYL	(78)   72	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
 PCBs

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 05/25/04
Project      : MFA, SITE 1, CTO 86      Date Received: 05/27/04
Batch No.    : 04E241                   Date Extracted: 06/01/04 16:30
Sample ID    : 86-S1-007                Date Analyzed: 06/03/04 05:09
Lab Samp ID  : E241-04                   Dilution Factor: .94
Lab File ID  : SF02040A                  Matrix          : WATER
Ext Btch ID  : CPF001W                    % Moisture       : NA
Calib. Ref.  : SF02033A                  Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(82) 84	30-130
DECACHLOROBIPHENYL	(79) 71	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

5130

SW3520C/8082  
PCBs

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 05/25/04
Project      : MFA, SITE 1, CTO 86      Date Received: 05/27/04
Batch No.    : 04E241                   Date Extracted: 06/01/04 16:30
Sample ID    : 86-S1-008                Date Analyzed: 06/03/04 05:34
Lab Samp ID  : E241-05                  Dilution Factor: .94
Lab File ID  : SF02041A                 Matrix       : WATER
Ext Btch ID  : CPF001W                  % Moisture    : NA
Calib. Ref.  : SF02033A                 Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(47) 49	30-130	
DECACHLOROBIPHENYL	(79) 70	30-130	

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 05/26/04
Project      : MFA, SITE 1, CTO 86      Date Received: 05/27/04
Batch No.    : 04E241                   Date Extracted: 06/01/04 16:30
Sample ID    : 86-S1-009                Date Analyzed: 06/03/04 05:59
Lab Samp ID  : E241-06                  Dilution Factor: .94
Lab File ID  : SF02042A                 Matrix       : WATER
Ext Btch ID  : CPF001W                  % Moisture    : NA
Calib. Ref.  : SF02033A                 Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(87)   87	30-130
DECACHLOROBIPHENYL	(71)   125	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit



**COLUMBIA ANALYTICAL SERVICES, INC.**

**Client:** EMAX Laboratories  
**Project:** MFA Site 1, CTO 86  
**Sample Matrix:** Water

**Service Request No.:** K2403969  
**Date Received:** 5/29/04

**CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

**Sample Receipt**

Five water samples were received for analysis at Columbia Analytical Services on 5/29/04. No discrepancies were noted upon initial sample inspection. All samples were received in good condition and consistent with the accompanying chain of custody forms. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Due to the nature of the sample matrices and additional project information received from the client on 6/3-4/04, additional analyses were subsequently authorized via email on 6/11/04. Other analyses were authorized via email on 6/16/04. Copies of all emails are included in the chain of custody section as supporting documentation.

**Dissolved Metals**

**Sample Notes and Discussion:**

Due to the high salinity of the water samples, CAS was not able to analyze the samples as initially requested by EPA 200.8 without additional pretreatment. As discussed with the client, the samples were analyzed using a combination of analytical techniques to meet a variety of project DQO requirements.

In the first approach, the samples were analyzed by ICP per EPA method 6010 (for Al, Sb, Ba, Be, Cd, Cr, Pb, Ni, Ag, Tl, V, Zn) and by GFAA for Arsenic (EPA method 7060A), Copper (EPA method 7211) and Lead (EPA method 7211).

After further discussion with the client, a second approach was designed to achieve lower method reporting limits in the highly saline sample matrix. All samples were pretreated by reductive precipitation using EPA method 1640 and analyzed by ICP/MS EPA method 200.8 for As, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Ni (quantified using isotope dilution), Ag, and Tl. In addition, Selenium was analyzed by hydride EPA method 7742.

A separate data package has been prepared for each analytical approach described above. Please note that samples were analyzed for Aluminum, Vanadium and Zinc only one time using ICP EPA method 6010B. However, results for these analytes have been included in both metals data packages.

**Matrix Spike Recovery Exceptions:**

The matrix spike recovery of Copper by EPA method 7211 for the Batch QC sample was outside the CAS control criteria because of matrix interference. The sample contained elevated levels of Total Dissolved Solids (TDS), which caused chemical and physical interference related to atomization and subsequent atomic absorption. The associated QA/QC results (i.e. LCS, CCV, etc.) indicate the analysis was in control. The low recovery suggests a similar low bias in the unspiked sample as well. No further corrective action was appropriate.

Approved by \_\_\_\_\_

*amc*  
*Spiegel*

Date \_\_\_\_\_

*7/6/07*

00005

The matrix spike recovery of Selenium by EPA method 7740 for the Batch QC sample is not applicable. The analysis of this sample required a dilution such that the added spike concentration was diluted below the Method Reporting Limit (MRL). No further corrective action was taken.

The matrix spike recovery of Arsenic by EPA method 200.8 for the Batch QC sample was outside control criteria. Recoveries in the Laboratory Control Samples (LCS) were acceptable, which indicates the analytical batch was in control. The matrix spike outlier suggests a potential low bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Approved by

*Ami Spitz*

Date

*2/6/07*

00006

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403969

Project No.: 04E247

Date Collected: 05/25/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: • NA

Sample Name: 86-S1-004

Lab Code: K2403969-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	20	U	
Arsenic	7060A	10.0	5.0	5	6/7/04	6/17/04	5.0	U	
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	74.9		
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	13.6		
Copper	7211	2.0	0.6	2	6/22/04	6/22/04	0.7	B	N
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	11.8	B	
Selenium	7740	40.0	20.0	20	6/22/04	6/30/04	20.0	U	
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.0	U	
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	4.0	B	

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403969

Project No.: 04E247

Date Collected: 05/25/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: • NA

Sample Name: 86-S1-006

Lab Code: K2403969-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	24.3	B	
Arsenic	7060A	10.0	5.0	5	6/7/04	6/17/04	5.5	B	
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	136		
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	12.6		
Copper	7211	2.0	0.6	2	6/22/04	6/22/04	0.6	U	N
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	5.5	B	
Selenium	7740	40.0	20.0	20	6/22/04	6/30/04	20.0	U	
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	9.0	B	
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	3.0	U	

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403969

Project No.: 04E247

Date Collected: 05/25/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-007

Lab Code: K2403969-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	20	U	
Arsenic	7060A	10.0	5.0	5	6/7/04	6/17/04	6.0	B	
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	135		
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	12.9		
Copper	7211	2.0	0.6	2	6/22/04	6/22/04	0.6	U	N
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	7.5	B	
Selenium	7740	40.0	20.0	20	6/22/04	6/30/04	20.0	U	
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.0	U	
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	3.0	U	

% Solids: 0.0

Comments:

00021

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403969

Project No.: 04E247

Date Collected: 05/25/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: •NA

Sample Name: 86-S1-008

Lab Code: K2403969-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	21.0	B	
Arsenic	7060A	10.0	5.0	5	6/7/04	6/17/04	5.0	U	
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	66.2		
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	9.5	B	
Copper	7211	2.0	0.6	2	6/22/04	6/22/04	0.6	U	N
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	44.7		
Selenium	7740	40.0	20.0	20	6/22/04	6/30/04	20.0	U	
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.0	U	
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	59.9		

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403969

Project No.: 04E247

Date Collected: 05/25/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: .NA

Sample Name: 86-S1-009

Lab Code: K2403969-005 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	28.1	B	
Arsenic	7060A	10.0	5.0	5	6/7/04	6/17/04	5.0	U	
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	326		
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	9.5		
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	4.5	B	
Copper	7211	2.0	0.6	2	6/22/04	6/22/04	0.6	U	N
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	101		
Selenium	7740	40.0	20.0	20	6/22/04	6/30/04	20.0	U	
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.0	U	
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	46.5		

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403969

Project No.: 04E247

Date Collected: NA

Project Name: MFA, Site 1, CTO 86

Date Received: NA

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: Method Blank

Lab Code: K2403969-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	20	U	
Arsenic	7060A	2.0	1.0	1	6/7/04	6/17/04	1.0	U	
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	1.0	U	
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	2.0	U	
Copper	7211	1.0	0.3	1	6/22/04	6/22/04	0.3	U	N
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	3.0	U	
Selenium	7740	2.0	1.0	1	6/22/04	6/30/04	1.0	U	
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.0	U	
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	3.0	U	

% Solids: 0.0

Comments:



**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04E241

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Five (5) water samples were received on 05/27/04 for Dissolved Mercury Analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analysis met the holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within the control limits.

4. Serial Dilution

Sample E241-01 was analyzed for serial dilution. % Difference was not evaluated since diluted sample result was not detected. Analytical spike was performed and met the QC limits.

5. Matrix Spike/Matrix Spike Duplicate

MS/MSD sample was not designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FM, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 04E241

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	ENMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLKLW	HGF008MB	ND	1	NA	.2	.1	06/08/0410:49	06/07/0415:00	M47F009010	M47F009008	HGF008M	NA	06/07/04
LCS1W	HGF008ML	4.72	1	NA	.2	.1	06/08/0410:52	06/07/0415:00	M47F009011	M47F009008	HGF008M	NA	06/07/04
LCD1W	HGF008MC	4.76	1	NA	.2	.1	06/08/0410:54	06/07/0415:00	M47F009012	M47F009008	HGF008M	NA	06/07/04
86-SI-004AS	E241-01A	88	20	NA	4	2	06/08/0412:30	06/07/0415:00	M47F009056	M47F009054	HGF008M	05/25/04	05/27/04
86-SI-004	E241-01	ND	20	NA	4	2	06/08/0412:32	06/07/0415:00	M47F009057	M47F009054	HGF008M	05/25/04	05/27/04
86-SI-004DL	E241-01T	ND	100	NA	20	10	06/08/0412:34	06/07/0415:00	M47F009058	M47F009054	HGF008M	05/25/04	05/27/04
86-SI-006	E241-03	ND	20	NA	4	2	06/08/0412:36	06/07/0415:00	M47F009059	M47F009054	HGF008M	05/25/04	05/27/04
86-SI-007	E241-04	ND	20	NA	4	2	06/08/0412:39	06/07/0415:00	M47F009060	M47F009054	HGF008M	05/25/04	05/27/04
86-SI-008	E241-05	ND	20	NA	4	2	06/08/0412:41	06/07/0415:00	M47F009061	M47F009054	HGF008M	05/25/04	05/27/04
86-SI-009	E241-06	ND	20	NA	4	2	06/08/0412:43	06/07/0415:00	M47F009062	M47F009054	HGF008M	05/26/04	05/27/04

RL: Reporting Limit

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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** May 25 through May 26, 2004  
**LDC Report Date:** July 6, 2004  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E241

**Sample Identification**

86-S1-004  
86-S1-006  
86-S1-007\*\*  
86-S1-008  
86-S1-009

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

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## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

Samples 86-S1-006 and 86-S1-007\*\* were identified as field duplicates. No mercury was detected in any of the samples.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86****Dissolved Mercury - Data Qualification Summary - SDG 04E241**

SDG	Sample	Analyte	Flag	A or P	Reason
04E241	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009	Mercury	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Airfield, CTO 86****Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 04E241**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**- Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** May 25, 2004  
**LDC Report Date:** July 8, 2004  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** K2403969

**Sample Identification**

86-S1-004  
86-S1-006  
86-S1-007\*\*  
86-S1-008  
86-S1-009  
86-S1-004RE  
86-S1-006RE  
86-S1-007RE\*\*  
86-S1-008RE  
86-S1-009RE  
86-S1-004MS  
86-S1-004DUP  
86-S1-004REMS  
86-S1-004REDUP

\*\*Indicates sample underwent EPA Level IV review



## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 200.8 and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Chromium Copper (2x)	2.2 ug/L 1.0 ug/L	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009
PB (prep blank)	Beryllium Nickel Thallium	0.004 ug/L 0.09 ug/L 0.001 ug/L	86-S1-004RE 86-S1-006RE 86-S1-007RE** 86-S1-008RE 86-S1-009RE
ICB/CCB	Antimony Beryllium Selenium Thallium	0.02 ug/L 0.011 ug/L 0.2 ug/L 0.017 ug/L	86-S1-004RE 86-S1-006RE 86-S1-007RE** 86-S1-008RE 86-S1-009RE

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-004	Copper	0.7 ug/L	0.7U ug/L
86-S1-009	Chromium	9.5 ug/L	9.5U ug/L
86-S1-004RE	Beryllium	0.009 ug/L	0.009U ug/L
86-S1-006RE	Antimony (2x) Beryllium Thallium	0.90 ug/L 0.010 ug/L 0.006 ug/L	0.90U ug/L 0.010U ug/L 0.006U ug/L
86-S1-007RE**	Antimony (2x) Beryllium Thallium	0.90 ug/L 0.011 ug/L 0.006 ug/L	0.90U ug/L 0.011U ug/L 0.006U ug/L
86-S1-008RE	Antimony (2x) Beryllium	0.93 ug/L 0.006 ug/L	0.93U ug/L 0.006U ug/L
86-S1-009RE	Antimony (2x) Thallium	0.65 ug/L 0.002 ug/L	0.65U ug/L 0.002U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
86-S1-004MS (86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009)	Copper	72 (75-125)	J (all detects) UJ (all non-detects)	A
86-S1-010RE (86-S1-004RE 86-S1-006RE 86-S1-007RE** 86-S1-008RE 86-S1-009RE)	Arsenic Cobalt Zinc	31 (75-125) 66 (75-125) 67 (75-125)	J (all detects) UJ (all non-detects)	A

*Handwritten:* 86-S1-004  
IS Flagged

## VI.-Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits with the following exceptions:

Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
86-S1-007RE**	Indium 115	154.3 (60-125)	Antimony Barium	J (all detects) J (all detects)	A
86-S1-007RE**	Scandium 45 Nickel 61 Indium 115 Lutetium 175	130.2 (60-125) 188.8 (60-125) 139 (60-125) 149.5 (60-125)	Arsenic Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A

## IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed with the following exceptions:

Analytical Spike	Analyte	%R (Limits)	Associated Sample	Flag	A or P
86-S1-004A	Arsenic Copper Selenium	80.0 (85-115) 77.3 (85-115) 78.0 (85-115)	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009	J (all detects) UJ (all non-detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-S1-006 and 86-S1-007\*\* and samples 86-S1-006RE and 86-S1-007RE\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	86-S1-006	86-S1-007**	
Antimony	24.3	20U	Not calculable
Arsenic	5.5	6.0	9
Barium	136	135	1
Cobalt	12.6	12.9	2
Nickel	5.5	7.5	31
Vanadium	9.0	6.0U	Not calculable

Analyte	Concentration (ug/L)		RPD
	86-S1-006RE	86-S1-007RE**	
Antimony	0.90	0.90	0
Arsenic	5.35	4.92	8
Barium	152	155	2
Beryllium	0.010	0.011	10

Analyte	Concentration (ug/L)		RPD
	86-S1-006RE	86-S1-007RE**	
Calcium	0.011	0.009	20
Chromium	0.56	0.54	4
Cobalt	7.16	7.69	7
Copper	0.14	0.11	24
Lead	0.020	0.022	10
Nickel	9.47	9.72	3
Silver	0.016	0.033	69
Thallium	0.006	0.006	0
Vanadium	9.0	6.0U	Not calculable
Zinc	1.22	1.19	2

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**  
**Metals - Data Qualification Summary - SDG K2403969**

SDG	Sample	Analyte	Flag	A or P	Reason
K2403969	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009	Copper	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
K2403969	86-S1-004RE 86-S1-006RE 86-S1-007RE** 86-S1-008RE 86-S1-009RE	Arsenic Cobalt Zinc	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
K2403969	86-S1-007RE**	Antimony Barium Arsenic Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Internal standards (area)
K2403969	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009	Arsenic Copper Selenium	J (all detects) UJ (all non-detects)	A	Furnace atomic absorption QC (%R)

**Moffett Airfield, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG K2403969**

SDG	Sample	Analyte	Modified Final Concentration	A or P
K2403969	86-S1-004	Copper	0.7U ug/L	A
K2403969	86-S1-009	Chromium	9.5U ug/L	A
K2403969	86-S1-004RE	Beryllium	0.009U ug/L	A
K2403969	86-S1-006RE	Antimony (2x) Beryllium Thallium	0.90U ug/L 0.010U ug/L 0.006U ug/L	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
K2403969	86-S1-007HE**	Antimony (2x) Beryllium Thallium	0.90U ug/L 0.011U ug/L 0.006U ug/L	A
K2403969	86-S1-008RE	Antimony (2x) Beryllium	0.93U ug/L 0.006U ug/L	A
K2403969	86-S1-009RE	Antimony (2x) Thallium	0.65U ug/L 0.002U ug/L	A



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** May 25, 2004  
**LDC Report Date:** July 1, 2004  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E241

**Sample Identification**

86-S1-004  
86-S1-006  
86-S1-007\*\*  
86-S1-008  
86-S1-009

\*\*Indicates sample underwent EPA Level IV review.

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## **Introduction**

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-006 and 86-S1-007\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 04E241**

**No Sample Data Qualified in this SDG**

**Moffett Airfield, CTO 86**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 04E241**

**No Sample Data Qualified in this SDG**

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** May 25, 2004  
**LDC Report Date:** July 2, 2004  
**Matrix:** Water  
**Parameters:** Chlorinated Pesticides  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E241

**Sample Identification**

86-S1-004  
86-S1-006  
86-S1-007\*\*  
86-S1-008  
86-S1-009

\*\*Indicates sample underwent EPA Level IV review.

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## **Introduction**

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
6/3/04	SF02031A	RTX-CLP	4,4'-DDE 4,4'-DDD Methoxychlor	16 17 20	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009	J (all detects) UJ (all non-detects)	A
6/3/04	SF02031A	RTX-CLPII	Methoxychlor	15.4	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009	J (all detects) UJ (all non-detects)	A

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-006 and 86-S1-007\*\* were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**

**Chlorinated Pesticides - Data Qualification Summary - SDG 04E241**

SDG	Sample	Compound	Flag	A or P	Reason
04E241	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009	4,4'-DDE 4,4'-DDD Methoxychlor	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

**Moffett Airfield, CTO 86**

**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 04E241**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Field, CTO 86  
**Collection Date:** May 25, 2004  
**LDC Report Date:** July 2, 2004  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E241

**Sample Identification**

86-S1-004  
86-S1-006  
86-S1-007\*\*  
86-S1-008  
86-S1-009

\*\*Indicates sample underwent EPA Level IV review

✓  
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## **Introduction**

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for selected compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The mean percent difference (%D) between the initial calibration RRF and the continuing calibration RRF was less than or equal to 20.0% and less than or equal to 25.0% for individual compounds.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.



#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-006 and 86-S1-007\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Field, CTO 86**

**Semivolatiles - Data Qualification Summary - SDG 04E241**

**No Sample Data Qualified in this SDG**

**Moffett Field, CTO 86**

**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04E241**

**No Sample Data Qualified in this SDG**

COPY

LDC Report# 12145B1

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86

**Collection Date:** May 25, 2004

**LDC Report Date:** July 2, 2004

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E241

**Sample Identification**

86-S1-004

86-S1-015

86-S1-006

86-S1-007\*\*

86-S1-008

86-S1-009

\*\*Indicates sample underwent EPA Level IV review

✓  
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## **Introduction**

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

*Not Flagged due to pH's*

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	<i>g. H. 2</i> A 213
86-S1-004 ✓ 86-S1-006 ✓ 86-S1-007 ✓ 86-S1-009 ✓	All TCL compounds	8	7	J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) was less than or equal to 15.0% and less than or equal to 30.0% for individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected samples. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The mean percent difference (%D) between the initial calibration RRF and the continuing calibration RRF was less than or equal to 20.0% and less than or equal to 25.0% for individual compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/1/04	Dichlorodifluoromethane Naphthalene	44.4 26.4	86-S1-015 MBLK1W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
6/2/04	Dichlorodifluoromethane	37.1	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009 MBLK2W	J (all detects) UJ (all non-detects)	A

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/27/04	Chloromethane Vinyl chloride 1,1-Dichloropropene n-Butylbenzene	25.0 20.6 23.8 22.1	All samples in SDG 04E241	J (all detects) UJ (all non-detects)	P

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XV. Overall Assessment of Data**

Data flags have been summarized at the end of the report.

### **XVI. Field Duplicates**

Samples 86-S1-006 and 86-S1-007\*\* were identified as field duplicates. No volatiles were detected in any of the samples.

### **XVII. Field Blanks**

Sample 86-S1-015 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Airfield, CTO 86****Volatiles - Data Qualification Summary - SDG 04E241**

SDG	Sample	Compound	Flag	A or P	Reason
04E241	86-S1-004 86-S1-006 86-S1-007** 86-S1-009	All TCL compounds	J (all detects) UJ (all non-detects)	P	Technical holding times
04E241	86-S1-015	Dichlorodifluoromethane  Naphthalene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04E241	86-S1-004 86-S1-006 86-S1-007** 86-S1-008 86-S1-009	Dichlorodifluoromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04E241	86-S1-004 86-S1-015 86-S1-006 86-S1-007** 86-S1-008 86-S1-009	Chloromethane Vinyl chloride 1,1-Dichloropropene n-Butylbenzene	J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D)

**Moffett Airfield, CTO 86****Volatiles - Laboratory Blank Data Qualification Summary - SDG 04E241**

No Sample Data Qualified in this SDG



**CHAIN-OF-CUSTODY RECORD**

PROJECT NAME <b>CT086-Site1-Q2/04</b>			PURCHASE ORDER NO. <b>20848-Task 28</b>			<b>ANALYSES REQUIRED</b> <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 8260B extended list</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 8210C extended list</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 8081A extended list</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 8082 extended list</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 300.9 Dis. Metals</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 7470A Dis. Mercury</div> </div>										LABORATORY NAME <b>emax</b>			<b>Project Information Section</b> <b>Do not submit to Laboratory</b>			
PROJECT LOCATION <b>MorFett</b>			PROJECT NO. <b>1990.086E</b>													LABORATORY ID (FOR LABORATORY) <b>04E247</b> <b>02403968 metals</b>						
SAMPLER NAME <b>D. Harrison</b>			SAMPLER SIGNATURE <i>[Signature]</i>																			
PROJECT CONTACT <b>Lisa Bienkowski</b>			AIRBILL NUMBER																			
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		TYPE	T A T											COMMENTS	LOCATION	DEPTH		QC
				3	4															START	END	
86-SI-010	5/26/04	0910	33	X		W	day											MS/MSD	W1-5			Reg
86-SI-016	5/26/04	1230	3	X		W	day												Trip Blank			Reg
86-SI-011	5/26/04	1240	11	X		W	day												W1-8			Reg
86-SI-012	5/26/04	1325	11	X		W	day												W1-24			Reg
86-SI-013	5/26/04	1415	11		X	W	day												W1-16			Reg
<div style="font-size: 2em; opacity: 0.5;">X</div>																						
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE <b>5/27/04</b>		RECEIVED BY (Signature) <i>[Signature]</i>		LABORATORY INSTRUCTIONS/COMMENTS <b>Metals + Mercury were field filtered</b>													SAMPLING COMMENT: <b>Site1</b> <b>Q2/04</b>			
COMPANY <b>FLORIX</b>		TIME <b>1300</b>		COMPANY																		
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		COMPOSITE DESCRIPTION																
COMPANY		TIME		COMPANY																		
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		<b>SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)</b> TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																
COMPANY		TIME		COMPANY																		

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Suite 200

y Report  
MFA, Site 1, CTO 86Laboratory report for samples received on  
reported include :

Control #	Col Date	Matrix	Analysis
E247-01	05/26/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS DISSOLVED BY ICP* MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
E247-02	05/26/04	WATER	VOLATILE ORGANICS BY GC/MS
E247-03	05/26/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS DISSOLVED BY ICP* MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
E247-04	05/26/04	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS DISSOLVED BY ICP* MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS

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**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04E247

**SW 5030B/8260B**  
**VOLATILE ORGANICS BY GC/MS**

Five (5) water samples were received on 05/28/04 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time  
  
Samples E247-01, -03, -04 and -05 were labeled HCl preserved but had pH around 7. Samples were analyzed within 7 days.
2. Tuning and Calibration  
  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. Method Blank  
  
Method blank was free of contamination at the reporting limit.
4. Surrogate Recovery  
  
Recoveries were within QC limit.
5. Lab Control Sample/Lab Control Sample Duplicate  
  
Recoveries were within QC limit.
6. Matrix Spike/Matrix Spike Duplicate  
  
Sample E247-01 was spiked. All recoveries were within QC limit.
7. Sample Analysis  
  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 21:38
Sample ID: 86-S1-010	Date Analyzed: 06/01/04 21:38
Lab Samp ID: E247-01	Dilution Factor: 1
Lab File ID: RFQ011	Matrix: WATER
Ext Btch ID: V003F01	% Moisture: NA
Calib. Ref.: RDQ134	Instrument ID: T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	45	5
1,1,1-TRICHLOROETHANE	ND		
1,1,2,2-TETRACHLOROETHANE	ND		
1,1,2-TRICHLOROETHANE	ND		
1,1-DICHLOROETHANE	ND		
1,1-DICHLOROETHENE	ND		
1,1-DICHLOROPROPENE	ND		
1,2,3-TRICHLOROBENZENE	ND		
1,2,4-TRICHLOROPROPANE	ND		
1,2,4-TRICHLOROBENZENE	ND		
1,2,4-TRIMETHYLBENZENE	ND		
1,2-DIBROMO-3-CHLOROPROPANE	ND		
1,2-DICHLOROBENZENE	ND		
1,2-DICHLOROETHANE	ND		
1,2-DICHLOROPROPANE	ND		
1,3,5-TRIMETHYLBENZENE	ND		
1,3-DICHLOROBENZENE	ND		
1,3-DICHLOROPROPANE	ND		
1,4-DICHLOROBENZENE	ND		
1,2-DICHLOROPROPANE	ND		
2-BUTANONE	ND		
2-CHLOROTOLUENE	ND		
2-HEXANONE	ND		
4-CHLOROTOLUENE	ND		
4-METHYL-2-PENTANONE	ND		
ACETONE	ND		
BENZENE	ND		
BROMOBENZENE	ND		
BROMOCHLOROMETHANE	ND		
BROMODICHLOROMETHANE	ND		
BROMOFORM	ND		
BROMOMETHANE	ND		
CARBON DISULFIDE	ND		
CARBON TETRACHLORIDE	ND		
CHLOROBENZENE	ND		
CHLOROETHANE	ND		
CHLOROFORM	ND		
CHLOROMETHANE	ND		
CIS-1,2-DICHLOROETHENE	ND		
CIS-1,3-DICHLOROPROPENE	ND		
DIBROMOCHLOROMETHANE	ND		
DIBROMOMETHANE	ND		
DICHLORODIFLUOROMETHANE	ND		
ETHYLBENZENE	ND		
HEXACHLOROBUTADIENE	ND		
ISOPROPYL BENZENE	ND		
M/P-XYLENES	ND		
METHYLENE CHLORIDE	ND		
N-BUTYLBENZENE	ND		
N-PROPYLBENZENE	ND		
NAPHTHALENE	ND		
O-XYLENE	ND		
P-ISOPROPYLTOLUENE	ND		
SEC-BUTYLBENZENE	ND		
STYRENE	ND		
TERT-BUTYLBENZENE	ND		
TETRACHLOROETHYLENE	ND		
TOLUENE	ND		
TRANS-1,2-DICHLOROETHENE	ND		
TRANS-1,3-DICHLOROPROPENE	ND		
TRICHLOROETHENE	ND		
TRICHLOROFLUOROMETHANE	ND		
VINYL CHLORIDE	ND		

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	115	62-139
TOLUENE-D8	98	75-125
BROMOFLUOROBENZENE	94	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

7/6/04

2004



SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH, FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 22:18
Sample ID: 86-S1-011	Date Analyzed: 06/01/04 22:18
Lab Samp ID: E247-03	Dilution Factor: 1
Lab File ID: RF0012	Matrix : WATER
Ext Btch ID: V003F01	% Moisture : NA
Calib. Ref.: R00134	Instrument ID : T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,2,2-TETRACHLOROETHANE	ND	5	5
1,1,1,2-TETRACHLOROETHANE	ND	5	5
1,1,2,2-TETRACHLOROETHANE	ND	5	5
1,1,2,2-TRICHLOROETHANE	ND	5	5
1,1-DICHLOROETHANE	ND	5	5
1,1-DICHLOROETHENE	ND	5	5
1,1-DICHLOROPROPENE	ND	5	5
1,2,3-TRICHLOROBENZENE	ND	5	5
1,2,3-TRICHLOROPROPANE	ND	5	5
1,2,4-TRICHLOROBENZENE	ND	5	5
1,2,4-TRIMETHYLBENZENE	ND	5	5
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	5
1,2-DICHLOROBENZENE	ND	5	5
1,2-DICHLOROETHANE	ND	5	5
1,2-DICHLOROPROPANE	ND	5	5
1,3,5-TRIMETHYLBENZENE	ND	5	5
1,3-DICHLOROBENZENE	ND	5	5
1,3-DICHLOROPROPANE	ND	5	5
1,4-DICHLOROBENZENE	ND	5	5
2,2-DICHLOROPROPANE	ND	5	5
2-BUTANONE	ND	10	10
2-CHLOROTOLUENE	ND	10	10
2-HEXANONE	ND	10	10
4-CHLOROTOLUENE	ND	10	10
4-METHYL-2-PENTANONE	ND	10	10
ACETONE	ND	10	10
BENZENE	ND	10	10
BROMOBENZENE	ND	10	10
BROMOCHLOROMETHANE	ND	10	10
BROMODICHLOROMETHANE	ND	10	10
BROMOFORM	ND	10	10
BROMOMETHANE	ND	10	10
CARBON DISULFIDE	ND	10	10
CARBON TETRACHLORIDE	ND	10	10
CHLOROBENZENE	ND	10	10
CHLOROETHANE	ND	10	10
CHLOROFORM	ND	10	10
CHLOROMETHANE	ND	10	10
CIS-1,2-DICHLOROETHENE	ND	10	10
CIS-1,3-DICHLOROPROPENE	ND	10	10
DIBROMOCHLOROMETHANE	ND	10	10
DIBROMOMETHANE	ND	10	10
DICHLORODIFLUOROMETHANE	ND	10	10
ETHYLBENZENE	ND	10	10
HEXACHLOROBUTADIENE	ND	10	10
ISOPROPYL BENZENE	ND	10	10
M/P-XYLENES	ND	10	10
METHYLENE CHLORIDE	ND	10	10
N-BUTYLBENZENE	ND	10	10
N-PROPYLBENZENE	ND	10	10
NAPHTHALENE	ND	10	10
O-XYLENE	ND	10	10
P-ISOPROPYLTOLUENE	ND	10	10
SEC-BUTYLBENZENE	ND	10	10
STYRENE	ND	10	10
TERT-BUTYLBENZENE	ND	10	10
TETRACHLOROETHYLENE	ND	10	10
TOLUENE	ND	10	10
TRANS-1,2-DICHLOROETHENE	ND	10	10
TRANS-1,3-DICHLOROPROPENE	ND	10	10
TRICHLOROETHENE	ND	10	10
TRICHLOROFLUOROMETHANE	ND	10	10
VINYL CHLORIDE	ND	10	10

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	117	62-139
TOLUENE-D8	95	75-125
BROMOFLUOROBENZENE	90	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

76606

2006

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTD 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 22:57
Sample ID: 86-S1-012	Date Analyzed: 06/01/04 22:57
Lab Samp ID: E247-04	Dilution Factor: 1
Lab File ID: RF0013	Matrix: WATER
Ext Btch ID: V003F01	% Moisture: NA
Calib. Ref.: RDQ134	Instrument ID: T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	2
2-CHLOROTOLUENE	ND	10	2
2-HEXANONE	ND	10	2
4-CHLOROTOLUENE	ND	10	2
4-METHYL-2-PENTANONE	ND	10	2
ACETONE	ND	5	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	112	62-139
TOLUENE-D8	101	75-136
BROMOFLUOROBENZENE	103	75-135

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

7/6/04

2007

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 046247	Date Extracted: 06/01/04 23:36
Sample ID: 86-S1-013	Date Analyzed: 06/01/04 23:36
Lab Smp ID: E247-05	Dilution Factor: 1
Lab File ID: RFG014	Matrix : WATER
Ext Bch ID: V003F01	% Moisture : NA
Calib. Ref.: RDQ134	Instrument ID : T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	10	10
1,1,1-TRICHLOROETHANE	ND	10	10
1,1,2,2-TETRACHLOROETHANE	ND	10	10
1,1,2-TRICHLOROETHANE	ND	10	10
1,1-DICHLOROETHANE	ND	10	10
1,2-DICHLOROETHANE	ND	10	10
1,2-DICHLOROPROPENE	ND	10	10
1,2,3-TRICHLOROBENZENE	ND	10	10
1,2,3-TRICHLOROPROPANE	ND	10	10
1,2,4-TRICHLOROBENZENE	ND	10	10
1,2,4-TRIMETHYLBENZENE	ND	10	10
1,2-DIBROMO-3-CHLOROPROPANE	ND	10	10
1,2-DICHLOROBENZENE	ND	10	10
1,2-DICHLOROETHANE	ND	10	10
1,2-DICHLOROPROPANE	ND	10	10
1,3,5-TRIMETHYLBENZENE	ND	10	10
1,3-DICHLOROBENZENE	ND	10	10
1,3-DICHLOROPROPANE	ND	10	10
1,4-DICHLOROBENZENE	ND	10	10
2,2-DICHLOROPROPANE	ND	10	10
2-BUTANONE	ND	10	10
2-CHLOROTOLUENE	ND	10	10
2-HEXANONE	ND	10	10
4-CHLOROTOLUENE	ND	10	10
4-METHYL-2-PENTANONE	ND	10	10
ACETONE	ND	10	10
BENZENE	ND	10	10
BROMOBENZENE	ND	10	10
BROMOCHLOROMETHANE	ND	10	10
BROMODICHLOROMETHANE	ND	10	10
BROMOFORM	ND	10	10
BROMOMETHANE	ND	10	10
CARBON DISULFIDE	ND	10	10
CARBON TETRACHLORIDE	ND	10	10
CHLOROBENZENE	ND	10	10
CHLOROETHANE	ND	10	10
CHLOROFORM	ND	10	10
CHLOROMETHANE	ND	10	10
CIS-1,2-DICHLOROETHENE	ND	10	10
CIS-1,3-DICHLOROPROPENE	ND	10	10
DIBROMOCHLOROMETHANE	ND	10	10
DIBROMOMETHANE	ND	10	10
DICHLORO-DIFLUOROMETHANE	ND	10	10
ETHYLBENZENE	ND	10	10
HEXACHLOROBUTADIENE	ND	10	10
ISOPROPYL BENZENE	ND	10	10
M/P-XYLENES	ND	10	10
METHYLENE CHLORIDE	ND	10	10
N-BUTYLBENZENE	ND	10	10
N-PROPYLBENZENE	ND	10	10
NAPHTHALENE	ND	10	10
O-XYLENE	ND	10	10
P-ISOPROPYLTOLUENE	ND	10	10
SEC-BUTYLBENZENE	ND	10	10
STYRENE	ND	10	10
TERT-BUTYLBENZENE	ND	10	10
TETRACHLOROETHYLENE	ND	10	10
TOLUENE	ND	10	10
TRANS-1,2-DICHLOROETHENE	ND	10	10
TRANS-1,3-DICHLOROPROPENE	ND	10	10
TRICHLOROETHENE	ND	10	10
TRICHLOROFLUOROMETHANE	ND	10	10
VINYL CHLORIDE	ND	10	10

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	113	62-139
TOLUENE-D8	103	75-125
BROMOFLUOROBENZENE	103	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

7/6/04

2008



**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04E247

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Four (4) water samples were received on 05/28/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

Sample E247-01 was spiked. All recoveries were within QC limit.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : ME4 SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 17:00
Sample ID: 86-S1-010	Date Analyzed: 06/07/04 21:50
Lab Sample ID: E247-01	Dilution Factor: 94
Lab File ID: RFK087	Matrix: WATER
Ext Batch ID: SVF001W	% Moisture: NA
Calib. Ref.: REK313	Instrument ID: T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2-DIMETHYLPHENOL	ND	9.4	4.7
4-DINITROPHENOL	ND	19	9.4
4-DINITROTOLUENE	ND	19	9.4
4-DINITROTOLUENE	ND	19	9.4
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	9.4	4.7
4-DICHLOROBENZIDINE	ND	9.4	4.7
4-NITROANILINE	ND	19	9.4
4-6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSO-DIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	85	25-134
2-FLUOROBIPHENYL	48	42-126
2-FLUOROPHENOL	41	42-126
NITROBENZENE-D5	50	42-126
PHENOL-D5	80	42-126
TERPHENYL-D14	80	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

7/6/04

3004

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/26/04
Batch No. : 04E247	Date Extracted: 06/01/04 17:00
Sample ID: 86-S1-011	Date Analyzed: 06/07/04 23:21
Lab Samp ID: E247-03	Dilution Factor: 94
Lab File ID: RPK090	Matrix: WATER
Ext Btch ID: SVF001W	% Moisture: NA
Calib. Ref.: REK313	Instrument ID: T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	10	0.4
2,4-DINITROTOLUENE	ND	10	0.4
2,6-DINITROTOLUENE	ND	10	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	10	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	0.4
4,6-DINITRO-2-METHYLPHENOL	ND	10	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	10	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	10	0.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	10	5.6
DIETHYLPHTHALATE	ND	10	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	10	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCHLOROPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSDI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	10	0.4
PENTACHLOROPHENOL	ND	10	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	9.4	9.4
ATRAZINE	ND	10	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	94	25-134
2-FLUOROBIPHENYL	74	43-125
2-FLUOROPHENOL	61	25-125
NITROBENZENE-D5	75	25-125
PHENOL-D5	70	42-126
TERPHENYL-D14	88	

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

*7/6/04*

3005

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04247	Date Extracted: 06/01/04 17:00
Sample ID: 86-S1-012	Date Analyzed: 06/07/04 23:51
Lab Samp ID: E247-04	Dilution Factor: .94
Lab File ID: RFK091	Matrix : WATER
Ext Btch ID: SVF001W	% Moisture : NA
Calib. Ref: REK313	Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
4-DIMETHYLPHENOL	ND	9.4	4.7
4-DINITROPHENOL	ND	19	9.4
2-DINITROTOLUENE	ND	19	9.4
6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,4-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
DIMETHYLPHthalate	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	2.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSO-DIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.6
ACETOPHENONE	ND	19	6.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	86	25-134
2-FLUOROBIPHENYL	66	43-125
2-FLUOROPHENOL	94	23-125
NITROBENZENE-D5	65	28-125
PHENOL-D5	65	28-125
TERPHENYL-D14	79	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

7/6/04

3006

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 17:00
Sample ID: 86-S1-013	Date Analyzed: 06/08/04 00:21
Lab Samp ID: E247-05	Dilution Factor: .94
Lab File ID: RFK092	Matrix: WATER
Ext Btch ID: SVF001W	% Moisture: NA
Calib. Ref.: REK313	Instrument ID: T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
4-DINITROPHENOL	ND	19	9.4
4-DINITROTOLUENE	ND	19	9.4
6-DINITROTOLUENE	ND	19	9.4
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
METHYLNAPHTHALENE	ND	9.4	4.7
METHYLPHENOL	ND	19	9.4
NITROANILINE	ND	9.4	4.7
NITROPHENOL	ND	9.4	4.7
3,4-DICHLOROBENZIDINE	ND	9.4	4.7
NITROANILINE	ND	19	9.4
6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLORODANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	9.4
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	9.4
DIETHYLPHTHALATE	ND	19	9.4
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	9.4
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	9.4	4.7
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	69	25-134
2-FLUOROBIPHENYL	45	45-125
2-FLUOROPHENOL	36	25-125
NITROBENZENE-D5	40	25-125
PHENOL-D5	70	45-125
TERPHEYL-D14		

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

7/6/04

3007

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04E247

**SW3520C/8081A  
PESTICIDES**

Four (4) water samples were received on 05/28/04 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

Sample E247-01 was spiked. All recoveries were within QC limit.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8081A  
 PESTICIDES

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 16:30
Sample ID: 86-S1-010	Date Analyzed: 06/03/04 14:50
Lab Samp ID: E247-01	Dilution Factor: .94
Lab File ID: SF02063A	Matrix : WATER
Ext Btch ID: CPF001W	% Moisture : NA
Calib. Ref.: SF02056A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .024J	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	.036J (ND)	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	47 (49)	30-130
DECACHLOROBIPHENYL	(83) 66	30-130

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

*1/6/04*

5004

SW3520C/8081A  
 PESTICIDES

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 16:30
Sample ID: 86-S1-011	Date Analyzed: 06/03/04 09:21
Lab Samp ID: E247-03	Dilution Factor: .94
Lab File ID: SF02050A	Matrix : WATER
Ext Btch ID: CPF001W	% Moisture : NA
Calib. Ref.: SF02030A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .048	.047	.0094
HEPTACHLOR	.02J (ND)	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	.019J (ND)	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND <i>WJ</i>	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND <i>WJ</i>	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND <i>WJ</i>	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	62 (65)	30-130
DECACHLOROBIPHENYL	(72) 64	30-130

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

*7/6/04*

5005



SW3520C/8081A  
PESTICIDES

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 16:30
Sample ID: 86-S1-012	Date Analyzed: 06/03/04 09:46
Lab Samp ID: E247-04	Dilution Factor: .94
Lab File ID: SF02051A	Matrix : WATER
Ext Btch ID: CPF001W	% Moisture : NA
Calib. Ref.: SF02030A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .071	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND <i>US</i>	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND <i>US</i>	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND <i>US</i>	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(82) 81	30-130
DECACHLOROBIPHENYL	(70) 64	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

*7/6/04*

5006

SW3520C/8081A  
PESTICIDES

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 16:30
Sample ID: 86-S1-013	Date Analyzed: 06/03/04 10:12
Lab Smp ID: E247-05	Dilution Factor: .94
Lab File ID: SF02052A	Matrix : WATER
Ext Btch ID: CPF001W	% Moisture : NA
Calib. Ref.: SF02030A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .055	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	.035J (ND)	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND <i>WJ</i>	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND <i>WJ</i>	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND <i>WJ</i>	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	86 (90)	30-130
DECACHLOROBIPHENYL	(70) 64	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

*WJ*  
7/6/04  
5007

**CASE NARRATIVE****CLIENT: TETRA TECH FW, INC.****PROJECT: MFA, SITE 1, CTO 86****SDG: 04E247****SW3520C/8082  
PCBs**

Four (4) water samples were received on 05/28/04 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was five-point for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and all recoveries were within 85-115%.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample E247-01 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8082  
 PCBs

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 16:30
Sample ID: 86-S1-010	Date Analyzed: 06/03/04 14:50
Lab Samp ID: E247-01	Dilution Factor: .94
Lab File ID: SF02063A	Matrix : WATER
Ext Btch ID: CPF001W	% Moisture : NA
Calib. Ref.: SF02059A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(44)   46	30-130
DECACHLOROBIPHENYL	(81)   78	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

*7/6/04*

5145

SN3520C/8082  
 PCBs

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 16:30
Sample ID: 86-S1-011	Date Analyzed: 06/03/04 09:21
Lab Samp ID: E247-03	Dilution Factor: .94
Lab File ID: SF02050A	Matrix : WATER
Ext Btch ID: CPF001W	% Moisture : NA
Calib. Ref.: SF02033A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(58) 60	30-130
DECAHCHLOROBIPHENYL	(77) 69	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

7/6/04

5146

SW3520C/8082  
PCBs

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 16:30
Sample ID: 86-S1-D12	Date Analyzed: 06/03/04 09:46
Lab Samp ID: E247-04	Dilution Factor: .94
Lab File ID: SF02051A	Matrix : WATER
Ext Btch ID: CPF001W	% Moisture : NA
Calib. Ref.: SF02033A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(76) 76	30-130
DECACHLOROBIPHENYL	(75) 69	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

*7/6/04*

5147

SW3520C/8082  
PCBs

Client : TETRA TECH FW, INC.	Date Collected: 05/26/04
Project : MFA, SITE 1, CTO 86	Date Received: 05/28/04
Batch No. : 04E247	Date Extracted: 06/01/04 16:30
Sample ID: 86-S1-013	Date Analyzed: 06/03/04 10:12
Lab Samp ID: E247-05	Dilution Factor: .94
Lab File ID: SF02052A	Matrix : WATER
Ext Btch ID: CPF001W	% Moisture : NA
Calib. Ref.: SF02033A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(80) 84	30-130
DECACHLOROBIPHENYL	(76) 69	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

*Handwritten signature/initials*

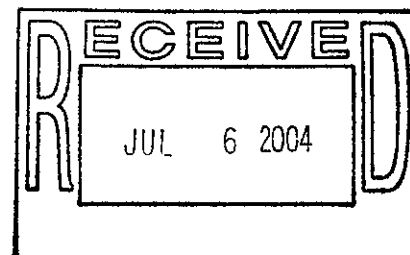
5148

COPY

July 6, 2004

Service Request No: K2403968

Jenny Touch  
EMAX Laboratories, Inc.  
1835 W. 205th St.  
Torrance, CA 90501



**RE: MFA, Site 1, CTO 86 / 04E247**

Dear Jenny:

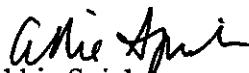
Enclosed are the results of the sample(s) submitted to our laboratory on May 29, 2004. For your reference, these analyses have been assigned our service request number K2403968.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Abbie Spielman  
Project Chemist

AS/jeb

Page 1 of 208

B



## COLUMBIA ANALYTICAL SERVICES, INC.

**Client:** EMAX Laboratories  
**Project:** MFA Site 1, CTO 86  
**Sample Matrix:** Water

**Service Request No.:** K2403968  
**Date Received:** 5/29/04

### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

#### Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 5/29/04. No discrepancies were noted upon initial sample inspection. All samples were received in good condition and consistent with the accompanying chain of custody forms. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Due to the nature of the sample matrices and additional project information received from the client on 6/3-4/04, additional analyses were subsequently authorized via email on 6/11/04. Other analyses were authorized via email on 6/16/04. Copies of all emails are included in the chain of custody section as supporting documentation.

#### Dissolved Metals

##### **Sample Notes and Discussion:**

Due to the high salinity of the water samples, CAS was not able to analyze the samples as initially requested by EPA 200.8 without additional pretreatment. As discussed with the client, the samples were analyzed using a combination of analytical techniques to meet a variety of project DQO requirements.

In the first approach, the samples were analyzed by ICP per EPA method 6010 (for Al, Sb, Ba, Be, Cd, Cr, Pb, Ni, Ag, Tl, V, Zn) and by GFAA for Arsenic (EPA method 7060A), Copper (EPA method 7211) and Lead (EPA method 7211).

After further discussion with the client, a second approach was designed to achieve lower method reporting limits in the highly saline sample matrix. All samples were pretreated by reductive precipitation using EPA method 1640 and analyzed by ICP/MS EPA method 200.8 for As, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Ni (quantified using isotope dilution), Ag, and Tl. In addition, Selenium was analyzed by hydride EPA method 7742.

A separate data package has been prepared for each analytical approach described above. Please note that samples were analyzed for Aluminum, Vanadium and Zinc only one time using ICP EPA method 6010B. However, results for these analytes have been included in both metals data packages.

##### **Matrix Spike Recovery Exceptions:**

The matrix spike recovery of Copper by EPA method 7211 for sample 86-S1-010 was outside the CAS control criteria because of matrix interference. The sample contained elevated levels of Total Dissolved Solids (TDS), which caused chemical and physical interference related to atomization and subsequent atomic absorption. The associated QA/QC results (i.e. LCS, CCV, etc.) indicate the analysis was in control. The low recovery suggests a similar low bias in the unspiked sample as well. No further corrective action was appropriate.

Approved by

*Ami Spielman*

Date

*7/6/04*

00005

The matrix spike recovery of Selenium by EPA method 7740 for sample 86-S1-010 is not applicable. The analysis of this sample required a dilution such that the added spike concentration was diluted below the Method Reporting Limit (MRL). No further corrective action was taken.

The matrix spike recovery of Arsenic by EPA method 200.8 for sample 86-S1-010 was outside control criteria. Recoveries in the Laboratory Control Samples (LCS) were acceptable, which indicates the analytical batch was in control. The matrix spike outlier suggests a potential low bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Approved by

*Ami Patel*

Date

*7/6/07*

00006

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403968

Project No.: 04E247

Date Collected: 05/26/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-010

Lab Code: K2403968-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	20	U	
Arsenic	7060A	10.0	5.0	5	6/7/04	6/17/04	7.0	B	J
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	477		
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	6.9	B	
Copper	7211	2.0	0.6	2	6/22/04	6/22/04	0.6	U	N U
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	4.7	B	
Selenium	77420	40.0	20.0	20	6/22/04	6/30/04	20.0	U	U
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	10.2		
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	3.0	U	

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403968

Project No.: 04E247

Date Collected: 05/26/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-010

Lab Code: K2403968-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	200.8	1.00	0.12	1	6/22/04	6/28/04	2.09		
Arsenic	200.8	1.00	0.04	1	6/24/04	6/29/04	3.62		N J
Barium	200.8	1.00	0.60	1	6/22/04	6/28/04	524		
Beryllium	200.8	0.040	0.002	1	6/24/04	6/29/04	0.007	B	U
Cadmium	200.8	0.040	0.006	1	6/24/04	6/29/04	0.012	B	
Chromium	200.8	0.40	0.08	1	6/24/04	6/29/04	0.80		
Cobalt	200.8	0.040	0.004	1	6/24/04	6/29/04	3.090		
Copper	200.8	0.20	0.02	1	6/24/04	6/29/04	0.08	B	
Lead	200.8	0.040	0.018	1	6/24/04	6/29/04	0.018	U	
Nickel	200.8	0.40	0.04	1	6/24/04	6/29/04	6.86		
Selenium	7742	1.0	0.3	2	6/22/04	6/24/04	0.3	B	U
Silver	200.8	0.040	0.010	1	6/24/04	6/29/04	0.010	U	
Thallium	200.8	0.040	0.001	1	6/24/04	6/29/04	0.016	B	U
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	10.2		
Zinc	200.8	1.00	0.04	1	6/24/04	6/29/04	0.87	B	

\* Solids: 0.0

Comments:

DISSOLVED METALS  
-1-  
INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403968

Project No.: 04E247

Date Collected: 05/26/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-011

Lab Code: K2403968-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	20	U	
Arsenic	7060A	10.0	5.0	5	6/7/04	6/17/04	5.0	U	✓
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	120		
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	3.9	B	
Copper	7211	2.0	0.6	2	6/22/04	6/22/04	0.6	U	N ✓
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	3.0	U	
Selenium	77470	40.0	20.0	20	6/22/04	6/30/04	20.0	U	✓
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.0	U	
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	7.1	B	

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403968

Project No.: 04E247

Date Collected: 05/26/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-011

Lab Code: K2403968-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	200.8	1.00	0.12	1	6/22/04	6/28/04	1.86		
Arsenic	200.8	1.00	0.04	1	6/24/04	6/29/04	1.57		
Barium	200.8	1.00	0.60	1	6/22/04	6/28/04	130		
Beryllium	200.8	0.040	0.002	1	6/24/04	6/29/04	0.006	B	
Cadmium	200.8	0.040	0.006	1	6/24/04	6/29/04	0.134		
Chromium	200.8	0.40	0.08	1	6/24/04	6/29/04	0.43		
Cobalt	200.8	0.040	0.004	1	6/24/04	6/29/04	0.882		
Copper	200.8	0.20	0.02	1	6/24/04	6/29/04	0.26		
Lead	200.8	0.040	0.018	1	6/24/04	6/29/04	0.018	U	
Nickel	200.8	0.40	0.04	1	6/24/04	6/29/04	5.66		
Selenium	7742	1.0	0.3	2	6/22/04	6/24/04	0.3	U	
Silver	200.8	0.040	0.010	1	6/24/04	6/29/04	0.034	B	
Thallium	200.8	0.040	0.001	1	6/24/04	6/29/04	0.025	B	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.0	U	
Zinc	200.8	1.00	0.04	1	6/24/04	6/29/04	3.74		

Not  
Spiked  
Sample

% Solids: 0.0

Comments:

7/17/04

00061

DISSOLVED METALS  
-1-  
INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403968

Project No.: 04E247

Date Collected: 05/26/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-012

Lab Code: K2403968-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	20	U	
Arsenic	7060A	10.0	5.0	5	6/7/04	6/17/04	9.4	B	✓
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	188		
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	11.9		
Copper	7211	2.0	0.6	2	6/22/04	6/22/04	0.6	U	N/A ✓
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	12.8	B	
Selenium	7742b	40.0	20.0	20	6/22/04	6/30/04	20.0	U	✓
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.8	B	
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	3.0	U	

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403968

Project No.: 04E247

Date Collected: 05/26/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-012

Lab Code: K2403968-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	200.8	1.00	0.12	1	6/22/04	6/28/04	2.14		
Arsenic	200.8	1.00	0.04	1	6/24/04	6/29/04	6.78		
Barium	200.8	1.00	0.60	1	6/22/04	6/28/04	214		
Beryllium	200.8	0.040	0.002	1	6/24/04	6/29/04	0.014	B	
Cadmium	200.8	0.040	0.006	1	6/24/04	6/29/04	0.006	U	
Chromium	200.8	0.40	0.08	1	6/24/04	6/29/04	1.23		
Cobalt	200.8	0.040	0.004	1	6/24/04	6/29/04	4.650		
Copper	200.8	0.20	0.02	1	6/24/04	6/29/04	0.19	B	
Lead	200.8	0.040	0.018	1	6/24/04	6/29/04	0.024	B	
Nickel	200.8	0.40	0.04	1	6/24/04	6/29/04	14.8		
Selenium	7742	1.0	0.3	2	6/22/04	6/24/04	0.3	U	
Silver	200.8	0.040	0.010	1	6/24/04	6/29/04	0.016	B	
Thallium	200.8	0.040	0.001	1	6/24/04	6/29/04	0.008	B	U
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.8	B	
Zinc	200.8	1.00	0.04	1	6/24/04	6/29/04	1.17		

% Solids: 0.0

Comments:



## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403968

Project No.: 04E247

Date Collected: 05/26/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-013

Lab Code: K2403968-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	6010B	50	20	1	6/22/04	6/29/04	25.9	B	
Arsenic	7060A	10.0	5.0	5	6/7/04	6/17/04	10.0		
Barium	6010B	5.0	1.0	1	6/22/04	6/29/04	210		
Beryllium	6010B	5.0	0.2	1	6/22/04	6/29/04	0.2	U	
Cadmium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Chromium	6010B	5.0	2.0	1	6/22/04	6/29/04	2.0	U	
Cobalt	6010B	10.0	2.0	1	6/22/04	6/29/04	14.8		
Copper	7211	2.0	0.6	2	6/22/04	6/22/04	0.6	U	N/A
Lead	6010B	50	20	1	6/22/04	6/29/04	20	U	
Nickel	6010B	20.0	3.0	1	6/22/04	6/29/04	13.5	B	
Selenium	77420	40.0	20.0	20	6/22/04	6/30/04	20.0	U	
Silver	6010B	10.0	7.0	1	6/22/04	6/29/04	7.0	U	
Thallium	6010B	100	30	1	6/22/04	6/29/04	30	U	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.0	U	
Zinc	6010B	10.0	3.0	1	6/22/04	6/29/04	3.0	U	

% Solids: 0.0

Comments:

7/7/04

00022

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2403968

Project No.: 04E247

Date Collected: 05/26/04

Project Name: MFA, Site 1, CTO 86

Date Received: 05/29/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-013

Lab Code: K2403968-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	6/22/04	6/29/04	50	U	
Antimony	200.8	1.00	0.12	1	6/22/04	6/28/04	2.25		
Arsenic	200.8	1.00	0.04	1	6/24/04	6/29/04	6.43	N	
Barium	200.8	1.00	0.60	1	6/22/04	6/28/04	229		
Beryllium	200.8	0.040	0.002	1	6/24/04	6/29/04	0.013	B	
Cadmium	200.8	0.040	0.006	1	6/24/04	6/29/04	0.054		
Chromium	200.8	0.40	0.08	1	6/24/04	6/29/04	0.49		
Cobalt	200.8	0.040	0.004	1	6/24/04	6/29/04	5.610		
Copper	200.8	0.20	0.02	1	6/24/04	6/29/04	0.13	B	
Lead	200.8	0.040	0.018	1	6/24/04	6/29/04	0.247		
Nickel	200.8	0.40	0.04	1	6/24/04	6/29/04	14.4		
Selenium	7742	1.0	0.3	2	6/22/04	6/24/04	0.3	U	
Silver	200.8	0.040	0.010	1	6/24/04	6/29/04	0.239		
Thallium	200.8	0.040	0.001	1	6/24/04	6/29/04	0.008	B	
Vanadium	6010B	10.0	6.0	1	6/22/04	6/29/04	6.0	U	
Zinc	200.8	1.00	0.04	1	6/24/04	6/29/04	0.46	B	

% Solids: 0.0

Comments:

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04E247

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Four (4) water samples were received on 05/28/04 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analysis met the holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within the control limits.

4. Serial Dilution

Sample E241-01 from another SDG was analyzed for serial dilution. % Difference was not evaluated since diluted sample result was not detected. Analytical spike was performed and met the QC limit.

5. Matrix Spike/Matrix Spike Duplicate

Sample E247-01 was spiked. The recoveries were below the QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

Samples were diluted due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FM, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 04E247  
Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGF008NB	ND	1	NA	.2	.1	06/08/0410:49	06/07/0415:00	M47F009010	M47F009008	HGF008W	NA	06/07/04
LCS1W	HGF008NL	4.72	1	NA	.2	.1	06/08/0410:52	06/07/0415:00	M47F009011	M47F009008	HGF008W	NA	06/07/04
LCS1W	HGF008NC	4.76	1	NA	.2	.1	06/08/0410:54	06/07/0415:00	M47F009012	M47F009008	HGF008W	NA	06/07/04
86-S1-010	E247-01	ND	20	NA	4	2	06/08/0412:56	06/07/0415:00	M47F009068	M47F009065	HGF008W	05/26/04	05/28/04
86-S1-010MS	E247-01M	3.3J	20	NA	4	2	06/08/0412:58	06/07/0415:00	M47F009069	M47F009065	HGF008W	05/26/04	05/28/04
86-S1-010MSD	E247-01S	3.18J	20	NA	4	2	06/08/0413:00	06/07/0415:00	M47F009070	M47F009065	HGF008W	05/26/04	05/28/04
86-S1-011	E247-03	ND	20	NA	4	2	06/08/0413:03	06/07/0415:00	M47F009071	M47F009065	HGF008W	05/26/04	05/28/04
86-S1-012	E247-04	ND	20	NA	4	2	06/08/0413:05	06/07/0415:00	M47F009072	M47F009065	HGF008W	05/26/04	05/28/04
86-S1-013	E247-05	ND	20	NA	4	-2	06/08/0413:07	06/07/0415:00	M47F009073	M47F009065	HGF008W	05/26/04	05/28/04

RL: Reporting Limit

7003

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86

**Collection Date:** May 26, 2004

**LDC Report Date:** July 6, 2004

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E247

**Sample Identification**

86-S1-010

86-S1-011

86-S1-012

86-S1-013\*\*

86-S1-010MS

86-S1-010MSD

\*\*Indicates sample underwent EPA Level IV review

✓  
98

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample was not required by the method.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-010MS/MSD (All samples in SDG 04E247)	Mercury	66 (75-125)	64 (75-125)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

Only S1-010  
is N/A

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.



**Moffett Airfield, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 04E247**

SDG	Sample	Analyte	Flag	A or P	Reason
04E247	86-S1-010 86-S1-011 86-S1-012 86-S1-013**	Mercury	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Airfield, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 04E247**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** May 26, 2004  
**LDC Report Date:** July 8, 2004  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** K2403968

**Sample Identification**

86-S1-010  
86-S1-011  
86-S1-012  
86-S1-013\*\*  
86-S1-010RE  
86-S1-011RE  
86-S1-012RE  
86-S1-013RE\*\*  
86-S1-010MS  
86-S1-010DUP  
86-S1-010REMS  
86-S1-010REDUP

\*\*Indicates sample underwent EPA Level IV review

✓  
50

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 200.8 and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Chromium Copper	2.2 ug/L 1.0 ug/L	86-S1-010 86-S1-011 86-S1-012 86-S1-013**
PB (prep blank)	Beryllium Nickel Thallium	0.004 ug/L 0.09 ug/L 0.001 ug/L	86-S1-010RE 86-S1-011RE 86-S1-012RE 86-S1-013RE**
ICB/CCB	Antimony Beryllium Selenium Thallium	0.02 ug/L 0.011 ug/L 0.2 ug/L 0.02 ug/L	86-S1-010RE 86-S1-011RE 86-S1-012RE 86-S1-013RF**

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-010RE	Beryllium Selenium Thallium	0.007 ug/L 0.3 ug/L 0.016 ug/L	0.007U ug/L ✓ 0.3U ug/L ✓ 0.016U ug/L ✓
86-S1-011RE	Antimony Beryllium	1.86 ug/L 0.006 ug/L	1.86U ug/L ✓ 0.006U ug/L ✓
86-S1-012RE	Thallium	0.008 ug/L	0.008U ug/L ✓
86-S1-013RE**	Thallium	0.008 ug/L	0.008U ug/L ✓

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
86-S1-010MS (86-S1-010 86-S1-011 86-S1-012 86-S1-013**)	Copper	69 (75-125)	J (all detects) UJ (all non-detects)	A
86-S1-010REMS (86-S1-010RE 86-S1-011RE 86-S1-012RE 86-S1-013RE**)	Arsenic Cobalt Zinc	31 (75-125) 66 (75-125) 67 (75-125)	J (all detects) UJ (all non-detects)	A

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits with the following exceptions:

Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
86-S1-013RE**	Indium 115	165.2	Antimony Barium	J (all detects) J (all detects)	A
86-S1-013RE**	Nickel 61 Lutetium 175	452.4 130.1	Arsenic Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A

### IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed with the following exceptions:

Analytical Spike	Analyte	%R (Limits)	Associated Sample	Flag	A or P
86-S1-010A	Arsenic Copper Selenium	79.5 (85-115) 72.5 (85-115) 81.0 (85-115)	86-S1-010 86-S1-011 86-S1-012 86-S1-013**	J (all detects) UJ (all non-detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

### X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

### XI. Sample Result Verification

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII.-Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**
**Metals - Data Qualification Summary - SDG K2403968**

SDG	Sample	Analyte	Flag	A or P	Reason
K2403968	86-S1-010 86-S1-011 86-S1-012 86-S1-013**	Copper	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
K2403968	86-S1-010RE 86-S1-011RE 86-S1-012RE 86-S1-013RE**	Arsenic Cobalt Zinc	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
K2403968	86-S1-013RE**	Antimony Barium Arsenic Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Internal standards (area)
K2403968	86-S1-010 86-S1-011 86-S1-012 86-S1-013**	Arsenic Copper Selenium	J (all detects) UJ (all non-detects)	A	Furnace atomic absorption QC (%R)

**Moffett Airfield, CTO 86**
**Metals - Laboratory Blank Data Qualification Summary - SDG K2403968**

SDG	Sample	Analyte	Modified Final Concentration	A or P
K2403968	86-S1-010RE	Beryllium Selenium Thallium	0.007U ug/L 0.3U ug/L 0.016U ug/L	A
K2403968	86-S1-011RE	Antimony Beryllium	1.86U ug/L 0.008U ug/L	A
K2403968	86-S1-012RE	Thallium	0.008U ug/L	A
K2403968	86-S1-013RE**	Thallium	0.008U ug/L	A



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** May 26, 2004  
**LDC Report Date:** July 1, 2004  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E247

**Sample Identification**

86-S1-010  
86-S1-011  
86-S1-012  
86-S1-013\*\*  
86-S1-010MS  
86-S1-010MSD

\*\*Indicates sample underwent EPA Level IV review.

✓  
LS

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 04E247**

**No Sample Data Qualified in this SDG**

**Moffett Airfield, CTO 86**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 04E247**

**No Sample Data Qualified in this SDG**

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86

**Collection Date:** May 26, 2004

**LDC Report Date:** July 1, 2004

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E247

**Sample Identification**

86-S1-010

86-S1-011

86-S1-012

86-S1-013\*\*

86-S1-010MS

86-S1-010MSD

\*\*Indicates sample underwent EPA Level IV review.

✓  
YB

## **Introduction**

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
6/3/04	SF02031A	RTX-CLP	4,4'-DDE 4,4'-DDD Methoxychlor	16 17 20	86-S1-011 86-S1-012 86-S1-013**	J (all detects) UJ (all non-detects)	A
6/3/04	SF02031A	RTX-CLPII	Methoxychlor	15.4	86-S1-011 86-S1-012 86-S1-013**	J (all detects) UJ (all non-detects)	A
6/3/04	SF02056B	RTX-CLPII	delta-BHC	16	86-S1-010 86-S1-010MS 86-S1-010MSD	J (all detects) UJ (all non-detects)	A

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.



Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86****Chlorinated Pesticides - Data Qualification Summary - SDG 04E247**

SDG	Sample	Compound	Flag	A or P	Reason
04E247	86-S1-011 86-S1-012 86-S1-013**	4,4'-DDE 4,4'-DDD Methoxychlor	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04E247	86-S1-011 86-S1-012 86-S1-013**	Methoxychlor	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04E247	86-S1-010	delta-BHC	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

**Moffett Airfield, CTO 86****Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 04E247**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Field, CTO 86  
**Collection Date:** May 26, 2004  
**LDC Report Date:** July 2, 2004  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E247

**Sample Identification**

86-S1-010  
86-S1-011  
86-S1-012  
86-S1-013\*\*  
86-S1-010MS  
86-S1-010MSD

\*\*Indicates sample underwent EPA Level IV review

✓  
Y

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for selected compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The mean percent difference (%D) between the initial calibration RRF and the continuing calibration RRF was less than or equal to 20.0% and less than or equal to 25.0% for individual compounds.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.



**Moffett Field, CTO 86**

**Semivolatiles - Data Qualification Summary - SDG 04E247**

**No Sample Data Qualified in this SDG**

**Moffett Field, CTO 86**

**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04E247**

**No Sample Data Qualified in this SDG**

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** May 26, 2004  
**LDC Report Date:** July 2, 2004  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04E247

**Sample Identification**

86-S1-010  
86-S1-016  
86-S1-011  
86-S1-012  
86-S1-013\*\*  
86-S1-010MS  
86-S1-010MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

All samples were received in good condition with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-S1-010 86-S1-011 86-S1-012 86-S1-013**	All TCL compounds	Air bubbles were apparent in the sample containers.	There should be no air bubbles in the sample containers.	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) was less than or equal to 15.0% and less than or equal to 30.0% for individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected samples. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The mean percent difference (%D) between the initial calibration RRF and the continuing calibration RRF was less than or equal to 20.0% and less than or equal to 25.0% for individual compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/1/04	Chloromethane Bromomethane 4-Methyl-2-pentanone 2-Hexanone	34 26 28 27	All samples in SDG 04E247	J (all detects) UJ (all non-detects)	A

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

#### X. Internal Standards

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment of Data**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Sample 86-S1-016 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Airfield, CTO 86****Volatiles - Data Qualification Summary - SDG 04E247**

SDG	Sample	Compound	Flag	A or P	Reason
04E247	86-S1-010 86-S1-011 86-S1-012 86-S1-013**	All TCL compounds	J (all detects) UJ (all non-detects)	A	Sample condition
04E247	86-S1-010 86-S1-016 86-S1-011 86-S1-012 86-S1-013**	Chloromethane Bromomethane 4-Methyl-2-pentanone 2-Hexanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

**Moffett Airfield, CTO 86****Volatiles - Laboratory Blank Data Qualification Summary - SDG 04E247**

No Sample Data Qualified in this SDG

**NOVEMBER 2004**





## CHAIN-OF-CUSTODY RECORD

PROJECT NAME CTO 86 - Site 1 - Semi Annual			PURCHASE ORDER NO. 20848 Task 28			ANALYSES REQUIRED										LABORATORY NAME CMAY		Project Information Section Do not submit to Laboratory				
PROJECT LOCATION Moffett			PROJECT NO. 1990.0860			epa 8260-B-EXT. LIST epa 8210C-EXT. LIST epa 8081A-EXT. LIST epa 8082-EXT. LIST epa 200.8-D. Metals epa 7470A-D. Merc.										LABORATORY ID (FOR LABORATORY) 04K094						
SAMPLER NAME D. Harrison			SAMPLER SIGNATURE <i>[Signature]</i>													COMMENTS						
PROJECT CONTACT Lynn Jefferson			AIRBILL NUMBER 845907613390																			
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		TYPE	T A T											LOCATION	DEPTH		QC	
				3	4														START	END		
86-S1-056	11/8/04	0915	11	X		W	10 day	X	X	X	X	X	X	X	X				W1-1R			Reg
86-S1-069	11/8/04	0920	3	X		W	10 day	X										Trip Blank			TB	
86-S1-057	11/8/04	1015	11	X		W	10 day	X	X	X	X	X	X	X	X			W1-15			Reg	
86-S1-058	11/8/04	1110	11	X		W	10 day	X	X	X	X	X	X	X	X			W1-19			Reg	
86-S1-060	11/9/04	0805	11	X		W	10 day	X	X	X	X	X	X	X	X			W1-14			Reg	
86-S1-061	11/9/04	0920	11	X		W	10 day	X	X	X	X	X	X	X	X			W1-12R			Reg	
86-S1-062	11/9/04	1015	11	X		W	10 day	X	X	X	X	X	X	X	X			W1-22			Reg	
<del>251</del>																		<del>251</del>				
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE 11/9/04		RECEIVED BY (Signature) FELIX		LABORATORY INSTRUCTIONS/COMMENTS EXT. LIST = Extended List Metals + Merc were field filtered												SAMPLING COMMENT: Semi-Annual/04 Site 1 R5/04 for Sr+H <sub>2</sub>				
COMPANY TFCO		TIME 1400		COMPANY		COMPOSITE DESCRIPTION																
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)																		
COMPANY		TIME		COMPANY																		
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																
COMPANY		TIME		COMPANY																		

# **CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04K094

## **SW 5030B/8260B VOLATILE ORGANICS BY GC/MS**

Seven (7) water samples were received on 11/10/04 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

### 1. Holding Time

Analytical holding time was met.

### 2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

### 3. Method Blank

Method blank was free of contamination at the reporting limit.

### 4. Surrogate Recovery

Recoveries were within QC limit.

### 5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

### 6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

### 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Sample K094-07 was initially analyzed at DF 5 due to foaming.

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                   Date Extracted: 11/19/04 07:19
Sample ID   : 86-S1-056                 Date Analyzed: 11/19/04 07:19
Lab Samp ID : K094-01                   Dilution Factor: 1
Lab File ID : RKC593~--                 Matrix: WATER
Ext Btch ID : V067K45                   % Moisture: NA
Calib. Ref. : RJC640                   Instrument ID: T-067
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	10	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	10	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	128	62-139
TOLUENE-D8	91	75-125
BROMOFLUOROBENZENE	83	75-125

R.L. : Reporting limit  
 \* : Out of qc  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

Revised Report

2004

SW 50308/8260B  
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/19/04 06:43
Sample ID   : 86-S1-069               Date Analyzed: 11/19/04 06:43
Lab Samp ID : K094-02                 Dilution Factor: 1
Lab File ID : RKC592                  Matrix: WATER
Ext Btch ID : V067K45                 % Moisture: NA
Calib. Ref. : RJC640                  Instrument ID: T-067
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	2
2-CHLOROTOLUENE	ND	10	2
2-HEXANONE	ND	10	2
4-CHLOROTOLUENE	ND	10	2
4-METHYL-2-PENTANONE	ND	10	2
ACETONE	ND	10	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	1	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	106	62-139
TOLUENE-D8	97	75-125
BROMOFLUOROBENZENE	91	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

Revised Report

2005

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/08/04  
Project : MFA, SITE 1, CTO 86 Date Received: 11/10/04  
Batch No. : 04K094 Date Extracted: 11/19/04 07:56  
Sample ID: 86-S1-057 Date Analyzed: 11/19/04 07:56  
Lab Samp ID: K094-03 Dilution Factor: 1  
Lab File ID: RKC594 Matrix: WATER  
Ext Btch ID: V067K45 % Moisture: NA  
Calib. Ref.: RJC640 Instrument ID: T-067

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,2,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	10	2
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	ND	10	2
ACETONE	ND	10	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	1	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	126	62-139
TOLUENE-D8	91	75-125
BROMOFLUOROBENZENE	84	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2006

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                 Date Extracted: 11/19/04 08:32
Sample ID   : 86-S1-058              Date Analyzed: 11/19/04 08:32
Lab Samp ID : K094-04                Dilution Factor: 1
Lab File ID : RKC595 -               Matrix: WATER
Ext Btch ID : V067K45               % Moisture: NA
Calib. Ref.: RJC640                 Instrument ID: T-067
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	127	62-139
TOLUENE-D8	91	75-125
BROMOFLUOROBENZENE	85	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

Revised Report

2007

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/19/04 09:09
Sample ID   : 86-S1-060               Date Analyzed: 11/19/04 09:09
Lab Samp ID : K094-05                 Dilution Factor: 1
Lab File ID : RKC596-~                Matrix      : WATER
Ext Btch ID : V067K45                 % Moisture   : NA
Calib. Ref. : RJC640                  Instrument ID : T-067
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	10	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	128	62-139
TOLUENE-D8	90	75-125
BROMOFLUOROBENZENE	84	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2010

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/09/04  
Project : MFA, SITE 1, CTO 86 Date Received: 11/10/04  
Batch No. : 04K094 Date Extracted: 11/19/04 09:46  
Sample ID: 86-S1-061 Date Analyzed: 11/19/04 09:46  
Lab Samp ID: K094-06 Dilution Factor: 1  
Lab File ID: RKC597 -- Matrix : WATER  
Ext Btch ID: V067K45 % Moisture : NA  
Calib. Ref.: RJC640 Instrument ID : T-067

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	.5	.2
ACETONE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	124	62-139
TOLUENE-D8	91	75-125
BROMOFLUOROBENZENE	86	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2011



SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/09/04  
Project : MFA, SITE 1, CTO 86 Date Received: 11/10/04  
Batch No. : 04K094 Date Extracted: 11/19/04 10:22  
Sample ID: 86-S1-062 Date Analyzed: 11/19/04 10:22  
Lab Samp ID: K094-07 Dilution Factor: 5  
Lab File ID: RKC598 Matrix : WATER  
Ext Btch ID: V067K45 % Moisture : NA  
Calib. Ref.: RJC640 Instrument ID : T-067

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	2.5	1
1,1,1-TRICHLOROETHANE	ND	2.5	1
1,1,2,2-TETRACHLOROETHANE	ND	2.5	1.5
1,1,2-TRICHLOROETHANE	ND	2.5	1
1,1-DICHLOROETHANE	ND	2.5	1
1,1-DICHLOROETHENE	ND	2.5	1
1,1-DICHLOROPROPENE	ND	2.5	1
1,2,3-TRICHLOROBENZENE	ND	2.5	1
1,2,3-TRICHLOROPROPANE	ND	2.5	1
1,2,4-TRICHLOROBENZENE	ND	2.5	1
1,2,4-TRIMETHYLBENZENE	ND	2.5	1
1,2-DIBROMO-3-CHLOROPROPANE	ND	10	5
1,2-DICHLOROBENZENE	ND	2.5	1
1,2-DICHLOROETHANE	ND	2.5	1
1,2-DICHLOROPROPANE	ND	2.5	1
1,3,5-TRIMETHYLBENZENE	ND	2.5	1
1,3-DICHLOROBENZENE	ND	2.5	1
1,3-DICHLOROPROPANE	ND	2.5	1
1,4-DICHLOROBENZENE	ND	2.5	1
2,2-DICHLOROPROPANE	ND	2.5	1
2-BUTANONE	ND	50	25
2-CHLOROTOLUENE	ND	2.5	1
2-HEXANONE	ND	50	5
4-CHLOROTOLUENE	ND	2.5	1
4-METHYL-2-PENTANONE	ND	50	5
ACETONE	ND	50	10
BENZENE	ND	2.5	1
BROMOBENZENE	ND	2.5	1
BROMOCHLOROMETHANE	ND	2.5	1
BROMODICHLOROMETHANE	ND	2.5	1
BROMOFORM	ND	2.5	2.5
BROMOMETHANE	ND	2.5	1
CARBON DISULFIDE	ND	2.5	1
CARBON TETRACHLORIDE	ND	2.5	1
CHLOROBENZENE	ND	2.5	1
CHLOROETHANE	ND	2.5	1
CHLOROFORM	ND	2.5	1
CHLOROMETHANE	ND	2.5	2.5
CIS-1,2-DICHLOROETHENE	ND	2.5	1
CIS-1,3-DICHLOROPROPENE	ND	2.5	1
DIBROMOCHLOROMETHANE	ND	2.5	1
DIBROMOMETHANE	ND	2.5	1
DICHLORODIFLUOROMETHANE	ND	2.5	2.5
ETHYLBENZENE	ND	2.5	1
HEXACHLOROBUTADIENE	ND	2.5	1
ISOPROPYL BENZENE	ND	2.5	1
M/P-XYLENES	ND	2.5	1.5
METHYLENE CHLORIDE	ND	10	5
N-BUTYLBENZENE	ND	2.5	1
N-PROPYLBENZENE	ND	2.5	1
NAPHTHALENE	ND	2.5	1.5
O-XYLENE	ND	2.5	1
P-ISOPROPYLTOLUENE	ND	2.5	1
SEC-BUTYLBENZENE	ND	2.5	1
STYRENE	ND	2.5	1
TERT-BUTYLBENZENE	ND	2.5	1
TETRACHLOROETHYLENE	ND	2.5	1
TOLUENE	ND	2.5	1
TRANS-1,2-DICHLOROETHENE	ND	2.5	1
TRANS-1,3-DICHLOROPROPENE	ND	2.5	1
TRICHLOROETHENE	ND	2.5	1
TRICHLOROFLUOROMETHANE	ND	5	1
VINYL CHLORIDE	ND	5	1.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	116	62-139
TOLUENE-D8	95	75-125
BROMOFLUOROBENZENE	87	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2012

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04K094

**SW 3520C/8270C**  
**SEMI VOLATILE ORGANICS BY GC/MS**

Six (6) water samples were received on 11/10/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time  
Analytical holding time was met.
2. Tuning and Calibration  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. Method Blank  
Method blank was free of contamination at the reporting limit.
4. Surrogate Recovery  
Recoveries were within QC limit.
5. Lab Control Sample  
Recoveries were within QC limit.
6. Matrix Spike/Matrix Spike Duplicate  
No MS/MSD sample was designated in this SDG.
7. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 11/08/04
Project : MFA SITE 1, CTO 86	Date Received: 11/10/04
Batch No. : 04K094	Date Extracted: 11/15/04 18:00
Sample ID: 86-S1-056	Date Analyzed: 12/03/04 13:54
Lab Samp ID: K094-01	Dilution Factor: .94
Lab File ID: RLH028	Matrix : WATER
Ext Btch ID: SVK019W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
2,3-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	92	25-134
2-FLUOROBIPHENYL	70	43-125
2-FLUOROPHENOL	61	25-125
NITROBENZENE-D5	68	32-125
PHENOL-D5	65	25-125
TERPHENYL-D14	102	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3004

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/08/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/10/04  
Batch No. : 04K094 Date Extracted: 11/15/04 18:00  
Sample ID: 86-S1-057 Date Analyzed: 12/03/04 14:22  
Lab Samp ID: K094-03 Dilution Factor: 94  
Lab File ID: RLH029 Matrix : WATER  
Ext Btch ID: SVK019W % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLORO BENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	86	25-134
2-FLUOROBIPHENYL	61	43-125
2-FLUOROPHENOL	50	25-125
NITROBENZENE-D5	56	32-125
PHENOL-D5	56	25-125
TERPHENYL-D14	95	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3005

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA SITE 1, CTO 88      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/15/04 18:00
Sample ID   : 86-S1-058                Date Analyzed: 12/03/04 14:49
Lab Samp ID : K094-04                  Dilution Factor: 94
Lab File ID : RLH030                   Matrix: WATER
Ext Btch ID : SVK019W                  % Moisture: NA
Calib. Ref. : RLH007                   Instrument ID: T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	86	25-134
2-FLUOROBIPHENYL	67	43-125
2-FLUOROPHENOL	57	25-125
NITROBENZENE-D5	66	32-125
PHENOL-D5	63	25-125
TERPHENYL-D14	91	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3006

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/09/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/10/04  
Batch No. : 04K094 Date Extracted: 11/15/04 18:00  
Sample ID: 86-S1-060 Date Analyzed: 12/03/04 15:17  
Lab Samp ID: K094-05 Dilution Factor: .95  
Lab File ID: RLH031 Matrix : WATER  
Ext Btch ID: SVK019W % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	19	9.5
2,4-DINITROTOLUENE	ND	19	9.5
2,6-DINITROTOLUENE	ND	19	5.7
2-CHLORONAPHTHALENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	9.5	4.8
2-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	19	5.7
2-NITROPHENOL	ND	9.5	4.8
3,3'-DICHLOROBENZIDINE	ND	9.5	4.8
3-NITROANILINE	ND	9.5	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.5
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	9.5	4.8
4-NITROPHENOL	ND	9.5	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.5	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.5
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DI-N-BUTYLPHTHALATE	ND	9.5	4.8
DI-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	9.5	4.8
DIETHYLPHTHALATE	ND	19	5.7
DIMETHYLPHTHALATE	ND	19	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	9.5	4.8
HEXACHLOROBENZENE	ND	19	5.7
HEXACHLOROCYCLOPENTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.5	4.8
NITROBENZENE	ND	9.5	4.8
PENTACHLOROPHENOL	ND	19	9.5
PHENANTHRENE	ND	19	5.7
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
1,1'-BIPHENYL	ND	9.5	4.8
ACETOPHENONE	ND	9.5	2.1
ATRAZINE	ND	19	9.5
BENZALDEHYDE	ND	9.5	4.8
CAPROLACTAM	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	87	25-134
2-FLUOROBIPHENYL	68	43-125
2-FLUOROPHENOL	63	25-125
NITROBENZENE-D5	74	32-125
PHENOL-D5	66	25-125
TERPHENYL-D14	96	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3012

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/09/04  
Project : MFA, SITE 1, CTO 86 Date Received: 11/10/04  
Batch No. : 04K094 Date Extracted: 11/15/04 18:00  
Sample ID: 86-S1-061 Date Analyzed: 12/03/04 15:44  
Lab Samp ID: K094-06 Dilution Factor: .94  
Lab File ID: RLH032 Matrix : WATER  
Ext Btch ID: SVK019W- % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	89	25-134
2-FLUOROBIPHENYL	72	43-125
2-FLUOROPHENOL	67	25-125
NITROBENZENE-D5	80	32-125
PHENOL-D5	68	25-125
TERPHENYL-D14	103	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3013

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/09/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/10/04  
Batch No. : 04K094 Date Extracted: 11/15/04 18:00  
Sample ID: 86-S1-062 Date Analyzed: 12/03/04 16:12  
Lab Samp ID: K094-07 Dilution Factor: 94  
Lab File ID: RLH033 Matrix : WATER  
Ext Btch ID: SVK019W % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLORO BENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLORO CYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	102	25-134
2-FLUOROBIPHENYL	79	43-125
2-FLUOROPHENOL	71	25-125
NITROBENZENE-D5	84	32-125
PHENOL-D5	75	25-125
TERPHENYL-D14	108	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3014



**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04K094

**SW3520C/8081A  
PESTICIDES**

Six (6) water samples were received on 11/10/04 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met except the re-extraction of K094-01, 03 and 04 was one day out of holding time.

2. Instrument Performance and Calibration

Initial calibration was at five points for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and mean recoveries were within 85-115%.

Endrin and DDT breakdown were within QC limit.

3. Method Blank

Method blanks were free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit except DCB in K094-01, 03, and 04. Samples were re-extracted, surrogates were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/12/04 18:00
Sample ID   : 86-S1-056               Date Analyzed: 11/15/04 23:08
Lab-Samp ID : K094-01                 Dilution Factor: .94
Lab File ID : SK15026A                Matrix          : WATER
Ext Btch ID : CPK013W                 % Moisture       : NA
Calib. Ref.: SK15019A                 Instrument ID    : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .012J	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) .012J	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	84 (95)	30-130
DECACHLOROBIPHENYL	24* (27*)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

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SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID   : 86-S1-056RE             Date Analyzed: 11/18/04 08:39
Lab Samp ID : K094-01R                Dilution Factor: .94
Lab File ID : SK17041A                Matrix       : WATER
Ext Btch ID : CPK014W                  % Moisture    : NA
Calib. Ref. : SK17035A                Instrument ID : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) ND	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	71 (77)	30-130
DECACHLOROBIPHENYL	86 (100)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5005

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/12/04 18:00
Sample ID   : 86-S1-057               Date Analyzed: 11/15/04 23:33
Lab_Samp ID : K094-03                 Dilution Factor: .94
Lab File ID : SK15027A                Matrix       : WATER
Ext Btch ID : CPK013W                 % Moisture    : NA
Calib. Ref. : SK15019A                Instrument ID : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .013J	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) .016J	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) .023J	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	85 (97)	30-130
DECACHLOROBIPHENYL	9* (10*)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5006

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID: 86-S1-057RE                Date Analyzed: 11/18/04 09:04
Lab Samp ID: K094-03R                  Dilution Factor: .94
Lab File ID: SK17042A                  Matrix      : WATER
Ext Btch ID: CPK014W                   % Moisture   : NA
Calib. Ref.: SK17035A                  Instrument ID: GCT008
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PARAMETERS	RESULTS (ug/L)		RL (ug/L)	MDL (ug/L)	
-----	-----		-----	-----	
ALPHA-BHC	(ND)	ND	.047	.0094	.0094
GAMMA-BHC (LINDANE)	(ND)	ND	.047	.0094	.0094
BETA-BHC	(ND)	ND	.047	.0094	.0094
HEPTACHLOR	(ND)	ND	.047	.0094	.0094
DELTA-BHC	(ND)	ND	.047	.0094	.0094
ALDRIN	(ND)	ND	.047	.0094	.0094
HEPTACHLOR EPOXIDE	(ND)	ND	.047	.0094	.0094
GAMMA-CHLORDANE	(ND)	ND	.047	.0094	.0094
ALPHA-CHLORDANE	(ND)	ND	.047	.0094	.0094
ENDOSULFAN I	(ND)	ND	.047	.028	.028
4,4'-DDE	(ND)	ND	.094	.028	.028
DIELDRIN	(ND)	ND	.19	.094	.094
ENDRIN	(ND)	ND	.094	.019	.019
4,4'-DDD	(ND)	ND	.094	.028	.028
ENDOSULFAN II	(ND)	ND	.094	.019	.019
4,4'-DDT	(ND)	ND	.094	.019	.019
ENDRIN ALDEHYDE	(ND)	ND	.094	.019	.019
ENDOSULFAN SULFATE	(ND)	ND	.094	.019	.019
ENDRIN KETONE	(ND)	ND	.094	.019	.019
METHOXYCHLOR	(ND)	ND	.47	.094	.094
TOXAPHENE	(ND)	ND	2.8	1.2	1.2
SURROGATE PARAMETERS	% RECOVERY		QC LIMIT		
-----	-----		-----		
TETRACHLORO-M-XYLENE	57	(62)	30-130		
DECACHLOROBIPHENYL	87	(103)	30-130		

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5007

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/12/04 18:00
Sample ID   : 86-S1-058                Date Analyzed: 11/15/04 23:59
Lab_Samp ID : K094-04                  Dilution Factor: .94
Lab File ID : SK15028A                 Matrix          : WATER
Ext Btch ID : CPK013W                  % Moisture       : NA
Calib. Ref. : SK15019A                 Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .019J	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) .023J	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) .067J	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	79 (90)	30-130
DECACHLOROBIPHENYL	24* (26*)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report  
5008

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID   : 86-S1-058RE             Date Analyzed: 11/18/04 09:30
Lab-Samp ID : K094-04R                 Dilution Factor: .94
Lab File ID : SK17043A                 Matrix          : WATER
Ext Btch ID : CPK014W                  % Moisture       : NA
Calib. Ref. : SK17035A                 Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) ND	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	82 (89)	30-130
DECACHLOROBIPHENYL	87 (102)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5011

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID: 86-S1-060                  Date Analyzed: 11/18/04 09:55
Lab_Samp ID: K094-05R                  Dilution Factor: .94
Lab File ID: SK17044A                  Matrix      : WATER
Ext Btch ID: CPK014W                   % Moisture   : NA
Calib. Ref.: SK17035A                  Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) ND	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) .011J	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	78 (86)	30-130
DECACHLOROBIPHENYL	88 (104)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5014



SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID: 86-S1-061                  Date Analyzed: 11/18/04 10:20
Lab_Samp ID: K094-06R                  Dilution Factor: .94
Lab File ID: SK17045A                  Matrix      : WATER
Ext Btch ID: CPK014W                   % Moisture   : NA
Calib. Ref.: SK17035A                  Instrument ID : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) ND	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) .01J	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	82 (89)	30-130
DECACHLOROBIPHENYL	85 (100)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5015

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID: 86-S1-062                  Date Analyzed: 11/18/04 10:45
Lab_Samp ID: K094-07R                 Dilution Factor: .94
Lab File ID: SK17046A                 Matrix       : WATER
Ext Btch ID: CPK014W                  % Moisture    : NA
Calib. Ref.: SK17035A                 Instrument ID : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.055 (.011J)	.047	.0094
GAMMA-BHC (LINDANE)	(ND) .02J	.047	.0094
BETA-BHC	.041J (.14)	.047	.0094
HEPTACHLOR	.022J (ND)	.047	.0094
DELTA-BHC	.014J (.029J)	.047	.0094
ALDRIN	.087 (ND)	.047	.0094
HEPTACHLOR EPOXIDE	.017J (.034J)	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	.016J (ND)	.047	.0094
ENDOSULFAN I	(ND) .064	.047	.028
4,4'-DDE	.042J (ND)	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	.02J (.032J)	.094	.019
4,4'-DDD	.051J (ND)	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) .074J	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) .04J	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	88 (92)	30-130
DECACHLOROBIPHENYL	70 (117)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5016

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04K094

**SW3520C/8082  
PCBs**

Six (6) water samples were received on 11/10/04 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met except three samples K094-01, 03 and 04 were re-extracted one day out of holding time.

2. Instrument Performance and Calibration

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and all recoveries were within 85-115%.

3. Method Blank

Method blanks were free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit except DCB in K094-01, 03 and 04. Samples were re-extracted and results met QC criteria.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                   Date Extracted: 11/12/04 18:00
Sample ID: 86-S1-056                   Date Analyzed: 11/15/04 23:08
Lab Samp ID: K094-01                   Dilution Factor: .94
Lab File ID: SK15026A                  Matrix       : WATER
Ext Btch ID: CPK013W                   % Moisture    : NA
Calib. Ref.: SK15022A                  Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(80) 92	30-130
DECACHLOROBIPHENYL	(23*) 29*	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

Revised Report

5179

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID   : 86-S1-056RE             Date Analyzed: 11/18/04 08:39
Lab-Samp ID : K094-01R                Dilution Factor: .94
Lab File ID : SK17041A                Matrix           : WATER
Ext Btch ID : CPK014W                 % Moisture        : NA
Calib. Ref. : SK17038A                Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(69) 77	30-130
DECACHLOROBIPHENYL	(86) 107	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

Revised Report

5180

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/12/04 18:00
Sample ID: 86-S1-057                  Date Analyzed: 11/15/04 23:33
Lab Samp ID: K094-03                  Dilution Factor: .94
Lab File ID: SK15027A                 Matrix       : WATER
Ext Btch ID: CPK013W                  % Moisture    : NA
Calib. Ref.: SK15022A                 Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(81) 94	30-130
DECACHLOROBIPHENYL	(9*) 11*	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

Revised Report

5181

SW3520C/8082  
PCBs

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094 _ _              Date Extracted: 11/16/04 19:00
Sample ID: 86-S1-057RE                 Date Analyzed: 11/18/04 09:04
Lab-Samp ID: K094-03R                  Dilution Factor: .94
Lab File ID: SK17042A                  Matrix           : WATER
Ext Btch ID: CPK014W                   % Moisture        : NA
Calib. Ref.: SK17038A                  Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(56)   63	30-130
DECACHLOROBIPHENYL	(87)   111	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

Revised Report

5182

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/12/04 18:00
Sample ID   : 86-S1-058               Date Analyzed: 11/15/04 23:59
Lab_Samp ID : K094-04                 Dilution Factor: .94
Lab File ID : SK15028A                Matrix       : WATER
Ext Btch ID : CPK013W                 % Moisture    : NA
Calib. Ref. : SK15022A                Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(75) 87	30-130
DECACHLOROBIPHENYL	(23*) 28*	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

Revised Report

5183



SW3520C/8082  
PCBs

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/08/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID: 86-S1-058RE                Date Analyzed: 11/18/04 09:30
Lab_Samp ID: K094-04R                  Dilution Factor: .94
Lab File ID: SK17043A                  Matrix       : WATER
Ext Btch ID: CPK014W                   % Moisture    : NA
Calib. Ref.: SK17038A                  Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(80) 90	30-130
DECACHLOROBIPHENYL	(87) 109	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

Revised Report

5186

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID: 86-S1-060                  Date Analyzed: 11/18/04 09:55
Lab-Samp ID: K094-05R                  Dilution Factor: .94
Lab File ID: SK17044A                  Matrix           : WATER
Ext Btch ID: CPK014W                  % Moisture        : NA
Calib. Ref.: SK17038A                  Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(75) 85	30-130
DECACHLOROBIPHENYL	(87) 112	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

Revised Report

5189

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID   : 86-S1-061               Date Analyzed: 11/18/04 10:20
Lab.Samp ID : K094-06R                Dilution Factor: .94
Lab File ID : SK17045A                Matrix          : WATER
Ext Btch ID : CPK014W                 % Moisture       : NA
Calib. Ref. : SK17038A                Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(80)   90	30-130
DECACHLOROBIPHENYL	(84)   108	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/10/04
Batch No.   : 04K094                  Date Extracted: 11/16/04 19:00
Sample ID   : 86-S1-062                Date Analyzed: 11/18/04 10:45
Lab.Samp ID : K094-07R                  Dilution Factor: .94
Lab File ID : SK17046A                  Matrix           : WATER
Ext Btch ID : CPK014W                   % Moisture        : NA
Calib. Ref. : SK17038A                  Instrument ID     : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(93) 104	30-130
DECACHLOROBIPHENYL	(70) 126	30-130

RL: Reporting Limit

Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

\* Out side of QC Limit

Revised Report

5191

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04K094

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Six (6) water samples were received on 11/10/04 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample K099-07 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

All samples were analyzed at DF 20 due to matrix interference from high salt level.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 04K094

Matrix : WATER  
Instrument ID : 11047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGK016WB	ND	1	NA	.2	.1	11/18/0416:07	11/17/0416:00	M47K019010	M47K019008	HGK016W	NA	11/17/04
LCS1W	HGK016WL	4.96	1	NA	.2	.1	11/18/0416:09	11/17/0416:00	M47K019011	M47K019008	HGK016W	NA	11/17/04
LCD1W	HGK016WC	4.94	1	NA	.2	.1	11/18/0416:11	11/17/0416:00	M47K019012	M47K019008	HGK016W	NA	11/17/04
86-S1-056	K094-01	ND	20	NA	4	2	11/18/0417:22	11/17/0416:00	M47K019044	M47K019042	HGK016W	11/08/04	11/10/04
86-S1-057	K094-03	ND	20	NA	4	2	11/18/0417:25	11/17/0416:00	M47K019045	M47K019042	HGK016W	11/08/04	11/10/04
86-S1-058	K094-04	ND	20	NA	4	2	11/18/0417:27	11/17/0416:00	M47K019046	M47K019042	HGK016W	11/08/04	11/10/04
86-S1-060	K094-05	ND	20	NA	4	2	11/18/0417:29	11/17/0416:00	M47K019047	M47K019042	HGK016W	11/09/04	11/10/04
86-S1-061	K094-06	ND	20	NA	4	2	11/18/0417:31	11/17/0416:00	M47K019048	M47K019042	HGK016W	11/09/04	11/10/04
86-S1-062	K094-07	ND	20	NA	4	2	11/18/0417:33	11/17/0416:00	M47K019049	M47K019042	HGK016W	11/09/04	11/10/04

RL: Reporting Limit

Revised Report

7003

**COLUMBIA ANALYTICAL SERVICES, INC.**

**Client:** EMAX Laboratories, Inc.  
**Project:** 04K099  
**Sample Matrix:** Water

**Service Request No.:** K2409068  
**Date Received:** 11/13/04

**CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

**Sample Receipt**

Six water samples were received for analysis at Columbia Analytical Services on 11/13/04. No discrepancies were noted upon initial sample inspection. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

**Metals**

**Sample Notes and Discussion:**

Due to the high salinity of sample matrix, all samples required pre-treatment using reductive precipitation prior to analysis by ICP/MS EPA 200.8. Analysis of Selenium was performed by hydride EPA 7742 due to the saline sample matrix.

**Matrix Spike Recovery Exceptions:**

The matrix spike recovery of Chromium for Batch QC sample was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. The matrix spike outlier suggests a potential low bias in this matrix. No further corrective action was appropriate.

The matrix spike recovery of Cobalt for Batch QC sample was outside the CAS control criteria as a result of the variability in the sample results. Variability between replicates was sufficient to bias the percent recoveries outside normal CAS control criteria. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicate the analysis was in control. Due to sample volume limitations no further corrective action was possible.

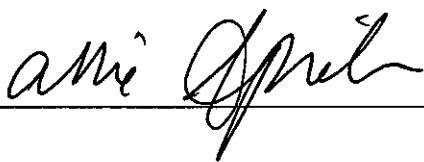
The control criterion for matrix spike recovery of Nickel for Batch QC sample is not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

**Relative Percent Difference Exceptions:**

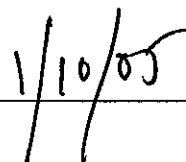
The Relative Percent Difference (RPD) for the replicate analysis of Cobalt in Batch QC sample was outside the normal CAS control limits. Additional analysis of the associated field samples could not be performed because insufficient sample remained for testing. No further corrective action was possible. The data is flagged to indicate the problem.

No other anomalies associated with the analysis of these samples were observed.

Approved by



Date



## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409068

Project No.: 04K094

Date Collected: 11/08/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: • NA

Sample Name: 86-S1-056

Lab Code: K2409068-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	4.220		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	5.75		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	111		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.005	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.003	B	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.25		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	8.680		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.30		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.017	B	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	19.2		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.7	B	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.092		
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.037		
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	4.17		

% Solids: 0.0

Comments:



## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409068

Project No.: 04K094

Date Collected: 11/08/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-057

Lab Code: K2409068-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	4.890		
Arsenic	200.8	1.00	0.04	2	12/29/04	1/3/05	7.96		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	126		
Beryllium	200.8	0.040	0.002	2	12/29/04	1/3/05	0.015	B	
Cadmium	200.8	0.040	0.006	2	12/29/04	1/3/05	0.006	U	
Chromium	200.8	0.40	0.08	2	12/29/04	1/3/05	0.51		N
Cobalt	200.8	0.040	0.004	2	12/29/04	1/3/05	4.360		*N
Copper	200.8	0.20	0.02	2	12/29/04	1/3/05	0.13	B	
Lead	200.8	0.040	0.018	2	12/29/04	1/3/05	0.018	U	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	7.60		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.040	0.010	2	12/29/04	1/3/05	0.010	U	
Thallium	200.8	0.040	0.001	2	12/29/04	1/3/05	0.001	U	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	1.00	0.04	2	12/29/04	1/3/05	22.7		

% Solids: 0.0

Comments:

DISSOLVED METALS  
-1-  
INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409068

Project No.: 04K094

Date Collected: 11/08/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: .NA

Sample Name: 86-S1-058

Lab Code: K2409068-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	4.820		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	2.82		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	81.3		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.003	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.421		
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.17	B	N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	11.0		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.38		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.039		
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	12.7		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.011	B	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.062		
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	37.4		

\* Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409068

Project No.: 04K094

Date Collected: 11/09/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: . NA

Sample Name: 86-S1-060

Lab Code: K2409068-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	4.490		
Arsenic	200.8	1.00	0.04	2	12/29/04	1/3/05	7.53		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	147		
Beryllium	200.8	0.040	0.002	2	12/29/04	1/3/05	0.007	B	
Cadmium	200.8	0.040	0.006	2	12/29/04	1/3/05	0.014	B	
Chromium	200.8	0.40	0.08	2	12/29/04	1/3/05	0.44		N
Cobalt	200.8	0.040	0.004	2	12/29/04	1/3/05	6.090		*N
Copper	200.8	0.20	0.02	2	12/29/04	1/3/05	0.23		
Lead	200.8	0.040	0.018	2	12/29/04	1/3/05	0.145		
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	7.60		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.040	0.010	2	12/29/04	1/3/05	0.012	B	
Thallium	200.8	0.040	0.001	2	12/29/04	1/3/05	0.001	U	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	1.00	0.04	2	12/29/04	1/3/05	29.5		

% Solids: 0.0

Comments:

DISSOLVED METALS  
-1-  
INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409068

Project No.: 04K094

Date Collected: 11/08/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-058

Lab Code: K2409068-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	4.820		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	2.82		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	81.3		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.003	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.421		
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.17	B	N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	11.0		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.38		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.039		
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	12.7		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.011	B	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.062		
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	37.4		

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409068

Project No.: 04K094

Date Collected: 11/09/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: . NA

Sample Name: 86-S1-061

Lab Code: K2409068-005 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	4.940		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	3.31		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	60.5		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.005	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.041		
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.26		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	3.280		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.24		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.012	B	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	8.35		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.050		
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	5.00	0.20	10	12/29/04	1/3/05	68.6		

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409068

Project No.: 04K094

Date Collected: 11/09/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: .NA

Sample Name: 86-S1-062

Lab Code: K2409068-006 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50.2		
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	1.940		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	2.20		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	1160		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.022		
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.003	U	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	6.19		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	0.101		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.37		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.213		
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	21.3		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.001	B	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	50.00	2.00	100	12/29/04	1/3/05	1320		

\* Solids: 0.0

Comments:

DISSOLVED METALS  
-1-  
INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409068

Project No.: 04K094

Date Collected: 11/09/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-061

Lab Code: K2409068-005 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	4.940		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	3.31		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	60.5		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.005	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.041		
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.26		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	3.280		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.24		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.012	B	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	8.35		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.050		
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	5.00	0.20	10	12/29/04	1/3/05	68.6		

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409068

Project No.: 04K094

Date Collected: NA

Project Name: NA

Date Received: NA

Matrix: WATER

Units: µg/L

Basis: .NA

Sample Name: Method Blank

Lab Code: K2409068-ME

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	0.316	B	
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	0.02	U	
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	0.600	U	
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.001	U	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.003	U	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.04	U	N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	0.002	U	*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.01	U	
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.009	U	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	0.02	U	
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.001	U	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	0.02	U	

% Solids: 0.0

Comments:



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86  
**Collection Date:** November 8 through November 9, 2004  
**LDC Report Date:** January 11, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc. & Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 04K094/K2409068

**Sample Identification**

86-S1-056  
86-S1-057  
86-S1-058\*\*  
86-S1-060  
86-S1-061  
86-S1-062

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 and EPA Method 200.8 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Antimony	0.316 ug/L	All samples in SDG 04K094/K2409068
ICB/CCB	Antimony Nickel Selenium Thallium Vanadium	0.038 ug/L 0.31 ug/L 0.16 ug/L 0.03 ug/L 7.2 ug/L	All samples in SDG 04K094/K2409068

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-056 (2X)	Selenium	0.7 ug/L	0.7U ug/L
86-S1-062	Antimony	1.94 ug/L	1.94U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
86-S1-068MS (All samples in SDG 04K094/K2409068)	Arsenic Beryllium Chromium Copper Zinc	43 (75-125) 59 (75-125) 45 (75-125) 72 (75-125) 49 (75-125)	J (all detects) UJ (all non-detects)	A
86-S1-068MS (All samples in SDG 04K094/K2409068)	Cobalt	150 (75-125)	J (all detects)	A

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
86-S1-068DUP (All samples in SDG 04K094/K2409068)	Cobalt	79 ( $\leq 30$ )	-	J (all detects) UJ (all non-detects)	A

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
86-S1-058** (digested 12/13/04)	Indium-115	158.6 (60-125)	Antimony Barium	J (all detects) J (all detects)	A
86-S1-058** (digested 1/3/05)	Lithium-6 Scandium-45 Nickel-61 Indium-115 Lutetium-175	150.4 (60-125) 130.8 (60-125) 154.7 (60-125) 138.9 (60-125) 130.7 (60-125)	Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc Arsenic	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

#### IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

#### X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

#### XI. Sample Result Verification

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

#### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

#### XIII. Field Duplicates

No field duplicates were identified in this SDG.

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Metals - Data Qualification Summary - SDG 04K094/K2409068**

SDG	Sample	Analyte	Flag	A or P	Reason
04K094/ K2409068	86-S1-056 86-S1-057 86-S1-058** 86-S1-060 86-S1-061 86-S1-062	Arsenic Beryllium Chromium Copper Zinc	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
04K094/ K2409068	86-S1-056 86-S1-057 86-S1-058** 86-S1-060 86-S1-061 86-S1-062	Cobalt	J (all detects)	A	Matrix spike analysis (%R)
04K094/ K2409068	86-S1-056 86-S1-057 86-S1-058** 86-S1-060 86-S1-061 86-S1-062	Cobalt	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (RPD)
04K094/ K2409068	86-S1-058**	Antimony Barium Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc Arsenic	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Internal standards (%R)

**Moffett Air Field, Site 1, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 04K094/K2409068**

SDG	Sample	Analyte	Modified Final Concentration	A or P
04K094/ K2409068	86-S1-056 (2X)	Selenium	0.7U ug/L	A
04K094/ K2409068	86-S1-062	Antimony	1.94U ug/L	A

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** November 8 through November 9, 2004  
**LDC Report Date:** January 11, 2005  
**Matrix:** Water  
**Parameters:** Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 04K094

**Sample Identification**

86-S1-056  
86-S1-057  
86-S1-058\*\*  
86-S1-060  
86-S1-061  
86-S1-062

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample was not required by the method.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-068MS/MSD (All samples in SDG 04K094)	Mercury	67 (75-125)	72 (75-125)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Mercury - Data Qualification Summary - SDG 04K094**

SDG	Sample	Analyte	Flag	A or P	Reason
04K094	86-S1-056 86-S1-057 86-S1-058** 86-S1-060 86-S1-061 86-S1-062	Mercury	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Airfield, Site 1, CTO 86**  
**Mercury - Laboratory Blank Data Qualification Summary - SDG 04K094**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA, Site 1, CTO 85  
**Collection Date:** November 8 through November 9, 2004  
**LDC Report Date:** January 11, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04K094

**Sample Identification**

86-S1-056  
86-S1-069  
86-S1-057  
86-S1-058\*\*  
86-S1-060  
86-S1-061  
86-S1-062

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
11/19/04	4-Methyl-2-pentanone	26.9	All samples in SDG 04K094	J (all detects) UJ (all non-detects)	A
	trans-1,3-Dichloropropene	25.2		J (all detects) UJ (all non-detects)	

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

Sample 86-S1-069 was identified as a trip blank. No volatile contaminants were found in this blank.



**Moffett Airfield, MFA, Site 1, CTO 85**  
**Volatiles - Data Qualification Summary - SDG 04K094**

SDG	Sample	Compound	Flag	A or P	Reason
04K094	86-S1-056	4-Methyl-2-pentanone	J (all detects)	A	Continuing calibration (%D)
	86-S1-069		UJ (all non-detects)		
	86-S1-057	trans-1,3-Dichloropropene	J (all detects)		
	86-S1-058**		UJ (all non-detects)		
	86-S1-060				
	86-S1-061				
	86-S1-062				

**Moffett Airfield, MFA, Site 1, CTO 85**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 04K094**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA, Site 1, CTO 85  
**Collection Date:** November 8 through November 9, 2004  
**LDC Report Date:** January 11, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04K094

**Sample Identification**

86-S1-056  
86-S1-057  
86-S1-058\*\*  
86-S1-060  
86-S1-061  
86-S1-062

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
12/2/04	Hexachlorocyclopentadiene	23.8	All samples in SDG 04K094	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA, Site 1, CTO 85**  
**Semivolatiles - Data Qualification Summary - SDG 04K094**

SDG	Sample	Compound	Flag	A or P	Reason
04K094	86-S1-056 86-S1-057 86-S1-058** 86-S1-060 86-S1-061 86-S1-062	Hexachlorocyclopentadiene	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)

**Moffett Airfield, MFA, Site 1, CTO 85**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04K094**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA, Site 1, CTO 86

**Collection Date:** November 8 through November 9, 2004

**LDC Report Date:** January 11, 2005

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04K094

**Sample Identification**

86-S1-056  
86-S1-056RE  
86-S1-057  
86-S1-057RE  
86-S1-058\*\*  
86-S1-058RE\*\*  
86-S1-060  
86-S1-061  
86-S1-062

\*\*Indicates sample underwent EPA Level IV review.



## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
86-S1-056RE 86-S1-057RE 86-S1-058RE**	All TCL compounds	8	7	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
11/15/04	gamma-Chlordane 4,4'-DDD Endrin ketone	16 24 17	86-S1-056 86-S1-057 86-S1-058** MBLK1W	J (all detects) UJ (all non-detects)	A

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
86-S1-056	RTX-CLPII	Decachlorobiphenyl	27 (30-130)	All TCL compounds	J (all detects) UJ (all non-detects)	A
86-S1-057	RTX-CLPII	Decachlorobiphenyl	10 (30-130)	All TCL compounds	J (all detects) UJ (all non-detects)	A
86-S1-058**	RTX-CLPII	Decachlorobiphenyl	26 (30-130)	All TCL compounds	J (all detects) UJ (all non-detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA, Site 1, CTO 86****Chlorinated Pesticides - Data Qualification Summary - SDG 04K094**

SDG	Sample	Compound	Flag	A or P	Reason
04K094	86-S1-056RE 86-S1-057RE 86-S1-058RE**	All TCL compounds	J (all detects) UJ (all non-detects)	A	Technical holding times
04K094	86-S1-056 86-S1-057 86-S1-058**	gamma-Chlordane 4,4'-DDD Endrin ketone	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
04K094	86-S1-056 86-S1-057 86-S1-058**	All TCL compounds	J (all detects) UJ (all non-detects)	A	Surrogate recovery (%R)

**Moffett Airfield, MFA, Site 1, CTO 86****Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 04K094**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA, Site 1, CTO 86  
**Collection Date:** November 8 through November 9, 2004  
**LDC Report Date:** January 11, 2005  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

ORIGINAL

**Sample Delivery Group (SDG):** 04K094

**Sample Identification**

86-S1-056  
86-S1-056RE  
86-S1-057  
86-S1-057RE  
86-S1-058\*\*  
86-S1-058RE\*\*  
86-S1-060  
86-S1-061  
86-S1-062

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
86-S1-056RE 86-S1-057RE 86-S1-058RE**	All TCL compounds	8	7	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance data were not provided and therefore not reviewed.

## III. Initial Calibration

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.



## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
86-S1-056	RTX-CLP	Decachlorobiphenyl	23 (30-130)	All TCL compounds	J (all detects) UJ (all non-detects)	A
86-S1-057	RTX-CLP	Decachlorobiphenyl	9 (30-130)	All TCL compounds	J (all detects) R (all non-detects)	A
86-S1-058**	RTX-CLP	Decachlorobiphenyl	23 (30-130)	All TCL compounds	J (all detects) UJ (all non-detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Pesticide Cleanup Checks

### a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

### b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA, Site 1, CTO 86**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 04K094**


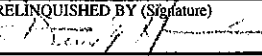
SDG	Sample	Compound	Flag	A or P	Reason
04K094	86-S1-056RE 86-S1-057RE 86-S1-058RE**	All TCL compounds	J (all detects) UJ (all non-detects)	A	Technical holding times
04K094	86-S1-056 86-S1-058**	All TCL compounds	J (all detects) UJ (all non-detects)	A	Surrogate recovery (%R)
04K094	86-S1-057	All TCL compounds	J (all detects) R (all non-detects)	A	Surrogate recovery (%R)

**Moffett Airfield, MFA, Site 1, CTO 86**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 04K094**

No Sample Data Qualified in this SDG

## CHAIN-OF-CUSTODY RECORD

PROJECT NAME C7086-Site1-Semi-Annual		PURCHASE ORDER NO. 20848 Task		ANALYSES REQUIRED										LABORATORY NAME EMAX		Project Information Section Do not submit to Laboratory								
PROJECT LOCATION Moffett		PROJECT NO. 1990.086E		<div>epa 8260B - Ext. List</div> <div>epa 8260C - Ext. List</div> <div>epa 8081A - Ext. List</div> <div>epa 8082 - Ext. List</div> <div>epa 200.8 - D. Metals</div> <div>epa 7470 - D. Merc.</div>										LABORATORY ID (FOR LABORATORY) 04K099										
SAMPLER NAME D. Harrison		SAMPLER SIGNATURE 												COMMENTS										
PROJECT CONTACT Lynn Jefferson		AIRBILL NUMBER 847882497896																						
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3 4	T Y P E	T A T											LOCATION		DEPTH START END		QC			
86-S1-070	11/9/04	1345	3	X	W	10 day	X												Trip Blank			B		
86-S1-063	11/9/04	1400	11	X	W	10 day	X	X	X	X	X	X	X						W1-5			Reg		
86-S1-064	11/9/04	1415	11		X	W	10 day	X	X	X	X	X	X						W1-5			FD		
86-S1-065	11/10/04	0755	11	X	W	10 day	X	X	X	X	X	X	X						W1-8			Reg		
86-S1-066	11/10/04	0810	11		X	W	10 day	X	X	X	X	X	X						W1-8			FD		
86-S1-067	11/10/04	0905	11	X	W	10 day	X	X	X	X	X	X	X						W1-24			Reg		
86-S1-068	11/10/04	1005	33	X	W	10 day	X	X	X	X	X	X	X				Run MS/MSD		W1-16			Reg		
RELINQUISHED BY (Signature) 		DATE 11/10/04		RECEIVED BY (Signature) FLDLX		LABORATORY INSTRUCTIONS/COMMENTS Metals & Mercury were field filtered. Ext. List = Extended List.																SAMPLING COMMENT: Site 1 Semi-annual /04		
COMPANY TRC		TIME 1400		COMPANY		COMPOSITE DESCRIPTION																		
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)																				
COMPANY		TIME		COMPANY																				
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																		
COMPANY		TIME		COMPANY																				

**CASE NARRATIVE****CLIENT: TETRA TECH FW, INC.****PROJECT: MFA, SITE 1, CTO 86****SDG: 04K099****SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS**

Seven (7) water samples were received on 11/11/04 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample K099-07 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/09/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/20/04 19:26  
Sample ID: 86-S1-070 Date Analyzed: 11/20/04 19:26  
Lab Samp ID: K099-01 Dilution Factor: 1  
Lab File ID: RKD581 Matrix : WATER  
Ext Btch ID: V094K45 % Moisture : NA  
Calib. Ref.: RJD151 Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	5	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	5	2
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	ND	5	2
ACETONE	ND	5	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	89	62-139
TOLUENE-DB	101	75-125
BROMOFLUOROBENZENE	111	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2004

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/09/04  
Project : MFA, SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/20/04 21:24  
Sample ID: 86-S1-063 Date Analyzed: 11/20/04 21:24  
Lab Samp ID: K099-02 Dilution Factor: 1  
Lab File ID: RKD584 Matrix : WATER  
Ext Btch ID: V094K45 % Moisture : NA  
Calib. Ref.: RJD151 Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.3
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	1.0	.2
2-CHLOROTOLUENE	ND	1.0	.2
2-HEXANONE	ND	1.0	.2
4-CHLOROTOLUENE	ND	1.0	.2
4-METHYL-2-PENTANONE	ND	1.0	.2
ACETONE	ND	1.0	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	100	62-139
TOLUENE-D8	92	75-125
BROMOFLUOROBENZENE	102	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2005

SW 5030B/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/09/04  
Project : MFA, SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/20/04 22:02  
Sample ID: 86-S1-064 Date Analyzed: 11/20/04 22:02  
Lab Samp ID: K099-03 Dilution Factor: 1  
Lab File ID: RKD585 Matrix : WATER  
Ext Btch ID: V094K45 % Moisture : NA  
Calib. Ref.: RJD151 Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.1	.3
1,1,2-TRICHLOROETHANE	ND	.1	.2
1,1-DICHLOROETHANE	ND	.1	.2
1,1-DICHLOROETHENE	ND	.1	.2
1,1-DICHLOROPROPENE	ND	.1	.2
1,2,3-TRICHLOROBENZENE	ND	.1	.2
1,2,3-TRICHLOROPROPANE	ND	.1	.2
1,2,4-TRICHLOROBENZENE	ND	.1	.2
1,2,4-TRIMETHYLBENZENE	ND	.1	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.1	.1
1,2-DICHLOROBENZENE	ND	.1	.2
1,2-DICHLOROETHANE	ND	.1	.2
1,2-DICHLOROPROPANE	ND	.1	.2
1,3,5-TRIMETHYLBENZENE	ND	.1	.2
1,3-DICHLOROBENZENE	ND	.1	.2
1,3-DICHLOROPROPANE	ND	.1	.2
1,4-DICHLOROBENZENE	ND	.1	.2
2,2-DICHLOROPROPANE	ND	.1	.2
2-BUTANONE	ND	.1	.2
2-CHLOROTOLUENE	ND	.1	.2
2-HEXANONE	ND	.1	.2
4-CHLOROTOLUENE	ND	.1	.2
4-METHYL-2-PENTANONE	ND	.1	.2
ACETONE	ND	.1	.2
BENZENE	ND	.1	.2
BROMOBENZENE	ND	.1	.2
BROMOCHLOROMETHANE	ND	.1	.2
BROMODICHLOROMETHANE	ND	.1	.2
BROMOFORM	ND	.1	.2
BROMOMETHANE	ND	.1	.2
CARBON DISULFIDE	.23J	.1	.2
CARBON TETRACHLORIDE	ND	.1	.2
CHLOROBENZENE	ND	.1	.2
CHLOROETHANE	ND	.1	.2
CHLOROFORM	ND	.1	.2
CHLOROMETHANE	ND	.1	.2
CIS-1,2-DICHLOROETHENE	ND	.1	.2
CIS-1,3-DICHLOROPROPENE	ND	.1	.2
DIBROMOCHLOROMETHANE	ND	.1	.2
DIBROMOMETHANE	ND	.1	.2
DICHLORODIFLUOROMETHANE	ND	.1	.2
ETHYLBENZENE	ND	.1	.2
HEXACHLOROBUTADIENE	ND	.1	.2
ISOPROPYL BENZENE	ND	.1	.2
M/P-XYLENES	ND	.1	.2
METHYLENE CHLORIDE	ND	.1	.2
N-BUTYLBENZENE	ND	.1	.2
N-PROPYLBENZENE	ND	.1	.2
NAPHTHALENE	ND	.1	.2
O-XYLENE	ND	.1	.2
P-ISOPROPYLTOLUENE	ND	.1	.2
SEC-BUTYLBENZENE	ND	.1	.2
STYRENE	ND	.1	.2
TERT-BUTYLBENZENE	ND	.1	.2
TETRACHLOROETHYLENE	ND	.1	.2
TOLUENE	ND	.1	.2
TRANS-1,2-DICHLOROETHENE	ND	.1	.2
TRANS-1,3-DICHLOROPROPENE	ND	.1	.2
TRICHLOROETHENE	ND	.1	.2
TRICHLOROFLUOROMETHANE	ND	.1	.2
VINYL CHLORIDE	ND	.1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	102	62-139
TOLUENE-D8	93	75-125
BROMOFLUOROBENZENE	109	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2006



SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/10/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/20/04 22:41  
Sample ID: 86-S1-065 Date Analyzed: 11/20/04 22:41  
Lab Samp ID: K099-04 Dilution Factor: 1  
Lab File ID: RKD586 Matrix : WATER  
Ext Btch ID: V094K45 % Moisture : NA  
Calib. Ref.: RJD151 Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	10	2
4-CHLOROTOLUENE	ND	10	2
4-METHYL-2-PENTANONE	ND	10	2
ACETONE	ND	10	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	105	62-139
TOLUENE-D8	93	75-125
BROMOFLUOROBENZENE	101	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/10/04  
Project : MFA, SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/20/04 23:21  
Sample ID: 86-S1-066 Date Analyzed: 11/20/04 23:21  
Lab Samp ID: K099-05 Dilution Factor: 1  
Lab File ID: RKD587 Matrix : WATER  
Ext Btch ID: V094K45 % Moisture : NA  
Calib. Ref.: RJD151 Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	1.5	2.2
1,1,1-TRICHLOROETHANE	ND	1.5	2.2
1,1,2,2-TETRACHLOROETHANE	ND	1.5	2.2
1,1,2-TRICHLOROETHANE	ND	1.5	2.2
1,1-DICHLOROETHANE	ND	1.5	2.2
1,1-DICHLOROETHENE	ND	1.5	2.2
1,1-DICHLOROPROPENE	ND	1.5	2.2
1,2,3-TRICHLOROBENZENE	ND	1.5	2.2
1,2,3-TRICHLOROPROPANE	ND	1.5	2.2
1,2,4-TRICHLOROBENZENE	ND	1.5	2.2
1,2,4-TRIMETHYLBENZENE	ND	1.5	2.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1.5	2.2
1,2-DICHLOROBENZENE	ND	1.5	2.2
1,2-DICHLOROETHANE	ND	1.5	2.2
1,2-DICHLOROPROPANE	ND	1.5	2.2
1,3,5-TRIMETHYLBENZENE	ND	1.5	2.2
1,3-DICHLOROBENZENE	ND	1.5	2.2
1,3-DICHLOROPROPANE	ND	1.5	2.2
1,4-DICHLOROBENZENE	ND	1.5	2.2
2,2-DICHLOROPROPANE	ND	1.5	2.2
2-BUTANONE	ND	1.5	2.2
2-CHLOROTOLUENE	ND	1.5	2.2
2-HEXANONE	ND	1.5	2.2
4-CHLOROTOLUENE	ND	1.5	2.2
4-METHYL-2-PENTANONE	ND	1.5	2.2
ACETONE	ND	1.5	2.2
BENZENE	ND	1.5	2.2
BROMOBENZENE	ND	1.5	2.2
BROMOCHLOROMETHANE	ND	1.5	2.2
BROMODICHLOROMETHANE	ND	1.5	2.2
BROMOFORM	ND	1.5	2.2
BROMOMETHANE	ND	1.5	2.2
CARBON DISULFIDE	23.1	1.5	2.2
CARBON TETRACHLORIDE	ND	1.5	2.2
CHLOROBENZENE	ND	1.5	2.2
CHLOROETHANE	ND	1.5	2.2
CHLOROFORM	ND	1.5	2.2
CHLOROMETHANE	ND	1.5	2.2
CIS-1,2-DICHLOROETHENE	ND	1.5	2.2
CIS-1,3-DICHLOROPROPENE	ND	1.5	2.2
DIBROMOCHLOROMETHANE	ND	1.5	2.2
DIBROMOMETHANE	ND	1.5	2.2
DICHLORODIFLUOROMETHANE	ND	1.5	2.2
ETHYLBENZENE	ND	1.5	2.2
HEXACHLOROBUTADIENE	ND	1.5	2.2
ISOPROPYL BENZENE	ND	1.5	2.2
M/P-XYLENES	ND	1.5	2.2
METHYLENE CHLORIDE	ND	1.5	2.2
N-BUTYLBENZENE	ND	1.5	2.2
N-PROPYLBENZENE	ND	1.5	2.2
NAPHTHALENE	ND	1.5	2.2
O-XYLENE	ND	1.5	2.2
P-ISOPROPYLTOLUENE	ND	1.5	2.2
SEC-BUTYLBENZENE	ND	1.5	2.2
STYRENE	ND	1.5	2.2
TERT-BUTYLBENZENE	ND	1.5	2.2
TETRACHLOROETHYLENE	ND	1.5	2.2
TOLUENE	ND	1.5	2.2
TRANS-1,2-DICHLOROETHENE	ND	1.5	2.2
TRANS-1,3-DICHLOROPROPENE	ND	1.5	2.2
TRICHLOROETHENE	ND	1.5	2.2
TRICHLOROFLUOROMETHANE	ND	1.5	2.2
VINYL CHLORIDE	ND	1.5	2.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	102	62-139	
TOLUENE-D8	92	75-125	
BROMOFLUOROBENZENE	102	75-125	

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2010

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/10/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/21/04 00:00  
Sample ID: 86-S1-067 Date Analyzed: 11/21/04 00:00  
Lab Samp ID: K099-06 Dilution Factor: 1  
Lab File ID: RKD588 Matrix : WATER  
Ext Btch ID: V094K45 % Moisture : NA  
Calib. Ref.: RJD151 Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	5	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	5	2
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	ND	5	2
ACETONE	ND	5	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	99	62-139
TOLUENE-D8	94	75-125
BROMOFLUOROBENZENE	100	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2014

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/10/04  
Project : MFA, SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/21/04 00:38  
Sample ID: 86-S1-068 Date Analyzed: 11/21/04 00:38  
Lab Samp ID: K099-07 Dilution Factor: 1  
Lab File ID: RKD589 Matrix : WATER  
Ext Btch ID: V094K45 % Moisture : NA  
Calib. Ref.: RJD151 Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	.5	.2
ACETONE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	103	62-139
TOLUENE-DB	92	75-125
BROMOFLUOROBENZENE	102	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

Revised Report

2015

**CASE NARRATIVE****CLIENT:** TETRA TECH FW, INC.**PROJECT:** MFA, SITE 1, CTO 86**SDG:** 04K099**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Six (6) water samples were received on 11/11/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time  
Analytical holding time was met.
2. Tuning and Calibration  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. Method Blank  
Method blank was free of contamination at the reporting limit.
4. Surrogate Recovery  
Recoveries were within QC limit.
5. Lab Control Sample  
Recoveries were within QC limit.
6. Matrix Spike/Matrix Spike Duplicate  
Sample K099-07 was spiked. All recoveries were within QC limit.
7. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW INC. Date Collected: 11/09/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/15/04 18:00  
Sample ID: 86-S1-063 Date Analyzed: 12/03/04 16:40  
Lab Samp ID: K099-02 Dilution Factor: 94  
Lab File ID: RLH034 Matrix : WATER  
Ext Btch ID: SVK019W % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLORODANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZO(F)ANTHRACENE	ND	9.4	4.7
DIBENZO(P)ANTHRACENE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	93	25-134
2-FLUOROBIPHENYL	55	43-125
2-FLUOROPHENOL	44	25-125
NITROBENZENE-D5	54	25-125
PHENOL-D5	49	25-125
TERPHENYL-D14	109	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3004

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/09/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/15/04 18:00  
Sample ID: 86-S1-064 Date Analyzed: 12/03/04 17:07  
Lab Samp ID: K099-03 Dilution Factor: .94  
Lab File ID: RLH035 Matrix : WATER  
Ext Btch ID: SVK019W % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : 1-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
CHLORONAPHTHALENE	ND	9.4	4.7
CHLOROPHENOL	ND	9.4	4.7
3-METHYLNAPHTHALENE	ND	9.4	4.7
3-METHYLPHENOL	ND	9.4	4.7
3-NITROANILINE	ND	19	5.6
3-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLORODETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.5
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	92	25-134
2-FLUOROBIPHENYL	67	43-125
2-FLUOROPHENOL	38	25-125
NITROBENZENE-D5	30	25-125
PHENOL-D5	26	25-125
TERPHENYL-D14	112	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3005

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/10/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/15/04 18:00  
Sample ID: 86-S1-065 Date Analyzed: 12/03/04 17:35  
Lab Samp ID: K099-04 Dilution Factor: .94  
Lab File ID: RLH036 Matrix : WATER  
Ext. Btch ID: SVK019W % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
4-DINITROPHENOL	ND	19	9.4
4-DINITROTOLUENE	ND	19	9.4
6-DINITROTOLUENE	ND	19	5.6
CHLORONAPHTHALENE	ND	9.4	4.7
CHLOROPHENOL	ND	9.4	4.7
METHYLNAPHTHALENE	ND	9.4	4.7
METHYLPHENOL	ND	9.4	4.7
NITROANILINE	ND	19	5.6
NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	9.4	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	87	25-134
2-FLUOROBIPHENYL	78	45-125
2-FLUOROPHENOL	68	25-125
NITROBENZENE-D5	85	25-125
PHENOL-D5	74	25-125
TERPHENYL-D14	111	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3010



SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH, FW, INC. Date Collected: 11/10/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/15/04 18:00  
Sample ID: 86-S1-066 Date Analyzed: 12/03/04 18:02  
Lab Samp ID: K099-05 Dilution Factor: .94  
Lab File ID: RLH037 Matrix : WATER  
Ext Btch ID: SVK019W % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	75	25-134
2-FLUOROBIPHENYL	69	43-125
2-FLUOROPHENOL	67	25-125
NITROBENZENE-D5	82	32-125
PHENOL-D5	69	25-125
TERPHENYL-D14	102	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3011

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 11/10/04  
Project : MFA SITE 1, CTO 86 Date Received: 11/11/04  
Batch No. : 04K099 Date Extracted: 11/15/04 18:00  
Sample ID: 86-S1-067 Date Analyzed: 12/03/04 18:30  
Lab Samp ID: K099-06 Dilution Factor: 94  
Lab File ID: RLH038 Matrix : WATER  
Ext Btch ID: SVK019W % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	4.7
2-NITROANILINE	ND	9.4	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	9.4	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	85	25-134
2-FLUOROBIPHENYL	77	25-125
2-FLUOROPHENOL	71	25-125
NITROBENZENE-D5	83	25-125
PHENOL-D5	79	25-125
TERPHENYL-D14	107	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3017

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH, FW, INC.      Date Collected: 11/10/04
Project     : MFA SITE 1, CTO 86        Date Received: 11/11/04
Batch No.   : 04K099                   Date Extracted: 11/15/04 18:00
Sample ID   : 86-SI-068                 Date Analyzed: 12/03/04 18:57
Lab Samp ID : K099-07                    Dilution Factor: .94
Lab File ID : RLH039                     Matrix: WATER
Ext Btch ID : SVK019W                    % Moisture: NA
Calib. Ref. : RLH007                    Instrument ID: T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	88	25-134
2-FLUOROBIPHENYL	80	43-125
2-FLUOROPHENOL	78	25-125
NITROBENZENE-D5	89	25-125
PHENOL-D5	76	25-125
TERPHENYL-D14	111	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

Revised Report

3018

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04K099

**SW3520C/8081A  
PESTICIDES**

Six (6) water samples were received on 11/11/04 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was at six points for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and mean recoveries were within 85-115%.

Endrin and DDT breakdown were within QC limit.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

Sample K099-07 was spiked. All recoveries were within QC limit.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.

SW3520C/8081A  
 PESTICIDES

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Client       : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID:   86-S1-063                   Date Analyzed: 11/18/04 11:11
Lab Samp ID: K099-02R                    Dilution Factor: .94
Lab File ID: SK17047A                     Matrix       : WATER
Ext Btch ID: CPK014W                      % Moisture    : NA
Calib. Ref.: SK17035A                     Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) ND	.047	.0094
HEPTACHLOR	(ND) .038J	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	.026J (ND)	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	62 (69)	30-130
DECACHLOROBIPHENYL	81 (97)	30-130

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

Revised Report

5004

SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID    : 86-S1-064                Date Analyzed: 11/18/04 11:36
Lab Samp ID  : K099-03R                 Dilution Factor: .94
Lab File ID  : SK17048A                 Matrix          : WATER
Ext Btch ID  : CPK014W                  % Moisture       : NA
Calib. Ref.  : SK17035A                 Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) ND	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) ND	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	.027 (ND)	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	69 (74)	30-130
DECACHLOROBIPHENYL	88 (103)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5005

SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 11/10/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID:   86-S1-065                  Date Analyzed: 11/18/04 12:02
Lab Samp ID: K099-04R                   Dilution Factor: .94
Lab File ID: SK17049A                   Matrix          : WATER
Ext Btch ID: CPK014W                    % Moisture       : NA
Calib. Ref.: SK17035A                   Instrument ID    : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND)ND	.047	.0094
BETA-BHC	(ND)ND	.047	.0094
HEPTACHLOR	(ND)ND	.047	.0094
DELTA-BHC	(ND)ND	.047	.0094
ALDRIN	(ND).035J	.047	.0094
HEPTACHLOR EPOXIDE	(ND)ND	.047	.0094
GAMMA-CHLORDANE	(ND)ND	.047	.0094
ALPHA-CHLORDANE	(ND)ND	.047	.0094
ENDOSULFAN I	(ND)ND	.047	.028
4,4'-DDE	(ND)ND	.094	.028
DIELDRIN	(ND)ND	.19	.094
ENDRIN	(ND)ND	.094	.019
4,4'-DDD	(ND)ND	.094	.028
ENDOSULFAN II	(ND)ND	.094	.019
4,4'-DDT	(ND)ND	.094	.019
ENDRIN ALDEHYDE	(ND)ND	.094	.019
ENDOSULFAN SULFATE	(ND)ND	.094	.019
ENDRIN KETONE	(ND)ND	.094	.019
METHOXYCHLOR	(ND)ND	.47	.094
TOXAPHENE	(ND)ND	2.8	1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	94(97)	30-130	
DECACHLOROBIPHENYL	84(103)	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5008

SW3520C/B081A  
PESTICIDES

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 11/10/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID    : 86-S1-066                 Date Analyzed: 11/18/04 12:27
Lab Samp ID  : K099-05R                  Dilution Factor: .94
Lab File ID  : SK17050A                  Matrix          : WATER
Ext Btch ID  : CPK014W                   % Moisture       : NA
Calib. Ref.  : SK17035A                  Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) ND	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) .024J	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) .032J	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	85 (93)	30-130	
DECACHLOROBIPHENYL	83 (100)	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5009



SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 11/10/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID:   86-S1-067                  Date Analyzed: 11/18/04 12:52
Lab Samp ID: K099-06R                   Dilution Factor: .94
Lab File ID: SK17051A                   Matrix          : WATER
Ext Btch ID: CPK014W                    % Moisture       : NA
Calib. Ref.: SK17035A                   Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.017J (ND)	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094 .0094
BETA-BHC	(ND) ND	.047	.0094 .0094
HEPTACHLOR	(ND) ND	.047	.0094 .0094
DELTA-BHC	(ND) ND	.047	.0094 .0094
ALDRIN	.034J (ND)	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094 .0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094 .0094
ENDOSULFAN I	(ND) ND	.047	.028 .028
4,4'-DDE	(ND) ND	.094	.028 .028
DIELDRIN	(ND) ND	.19	.094 .094
ENDRIN	(ND) ND	.094	.019 .019
4,4'-DDD	(ND) ND	.094	.028 .028
ENDOSULFAN II	(ND) ND	.094	.019 .019
4,4'-DDT	(ND) ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.094	.019 .019
ENDRIN KETONE	(ND) ND	.094	.019 .019
METHOXYCHLOR	(ND) ND	.47	.094 .094
TOXAPHENE	(ND) ND	2.8	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(101) 95	30-130	
DECACHLOROBIPHENYL	83 (99)	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5012

SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 11/10/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID:   86-S1-068                  Date Analyzed: 11/18/04 13:18
Lab Samp ID: K099-07R                    Dilution Factor: .94
Lab File ID: SK17052A                    Matrix           : WATER
Ext Btch ID: CPK014W                     % Moisture        : NA
Calib. Ref.: SK17035A                    Instrument ID     : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) ND	.047	.0094
HEPTACHLOR	(ND) ND	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	(ND) .018J	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	73 (82)	30-130
DECACHLOROBIPHENYL	82 (98)	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

Revised Report

5013

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04K099

**SW3520C/8082**  
**PCBs**

Six (6) water samples were received on 11/11/04 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and all recoveries were within 85-115%.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

Sample K099-07 was spiked. All recoveries were within QC limit.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8082  
PCBs

```
=====
Client      : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project     : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.   : 04K099                  Date Extracted: 11/16/04 19:00
Sample ID   : 86-S1-063                Date Analyzed: 11/18/04 11:11
Lab Samp ID : K099-02R                  Dilution Factor: .94
Lab File ID : SK17047A                  Matrix           : WATER
Ext Btch ID : CPK014W                   % Moisture        : NA
Calib. Ref. : SK17038A                  Instrument ID    : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(61)   69	30-130
DECACHLOROBIPHENYL	(81)   104	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

Revised Report

5143

SW3520C/8082  
PCBs

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 11/09/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID    : 86-S1-064                 Date Analyzed: 11/18/04 11:36
Lab Samp ID  : K099-03R                  Dilution Factor: .94
Lab File ID  : SK17048A                  Matrix          : WATER
Ext Btch ID  : CPK014W                   % Moisture       : NA
Calib. Ref.  : SK17038A                  Instrument ID    : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(64) 74	30-130
DECACHLOROBIPHENYL	(87) 110	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

Revised Report

5144

SW3520C/8082  
PCBs

```
=====
Client   : TETRA TECH FW, INC.      Date Collected: 11/10/04
Project  : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No. : 04K099                  Date Extracted: 11/16/04 19:00
Sample ID: 86-S1-065                Date Analyzed: 11/18/04 12:02
Lab Samp ID: K099-04R               Dilution Factor: .94
Lab File ID: SK17049A               Matrix       : WATER
Ext Btch ID: CPK014W                % Moisture   : NA
Calib. Ref.: SK17038A               Instrument ID : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(83)   98	30-130
DECACHLOROBIPHENYL	(84)   111	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

Revised Report

5147

SW3520C/8082  
PCBs

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 11/10/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID:   86-S1-066                  Date Analyzed: 11/18/04 12:27
Lab Samp ID: K099-05R                   Dilution Factor: .94
Lab File ID: SK17050A                   Matrix          : WATER
Ext Btch ID: CPK014W                   % Moisture       : NA
Calib. Ref.: SK17038A                   Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(80) 92	30-130
DECACHLOROBIPHENYL	(82) 107	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

Revised Report

5148

SW3520C/8082  
PCBs

```
=====
Client       : TETRA TECH FW, INC.      Date Collected: 11/10/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID    : 86-S1-067                Date Analyzed: 11/18/04 12:52
Lab Samp ID  : K099-06R                 Dilution Factor: .94
Lab File ID  : SK17051A                Matrix       : WATER
Ext Btch ID  : CPK014W                 % Moisture    : NA
Calib. Ref.  : SK17038A                Instrument ID : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(84) 95	30-130
DECACHLOROBIPHENYL	(82) 106	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

Revised Report

5151



SW3520C/8082  
PCBs

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 11/10/04
Project      : MFA, SITE 1, CTO 86      Date Received: 11/11/04
Batch No.    : 04K099                   Date Extracted: 11/16/04 19:00
Sample ID:   86-S1-068                  Date Analyzed: 11/18/04 13:18
Lab Samp ID: K099-07R                   Dilution Factor: .94
Lab File ID: SK17052A                   Matrix          : WATER
Ext Btch ID: CPK014W                    % Moisture       : NA
Calib. Ref.: SK17038A                   Instrument ID    : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(71) 82	30-130
DECACHLOROBIPHENYL	(81) 106	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

Revised Report

5153

# **CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04K099

## **METHOD 7470A DISSOLVED MERCURY BY COLD VAPOR**

Six (6) water samples were received on 11/11/04 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample K099-07 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample K099-07 was spiked. Recoveries were out of the QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

All samples were analyzed at DF 20 due to matrix interference of high salt leve.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTD 86  
Batch No. : 04K099

Matrix : WATER  
Instrument ID : Y1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGK016WB	ND	1	NA	.2	.1	11/18/04 16:07	11/17/04 16:00	M47K019010	M47K019008	HGK016W	NA	11/17/04
LCS1W	HGK016WL	4.96	1	NA	.2	.1	11/18/04 16:09	11/17/04 16:00	M47K019011	M47K019008	HGK016W	NA	11/17/04
LCD1W	HGK016WC	4.94	1	NA	.2	.1	11/18/04 16:11	11/17/04 16:00	M47K019012	M47K019008	HGK016W	NA	11/17/04
86-S1-068AS	K099-07A	35.4	20	NA	4	2	11/18/04 16:56	11/17/04 16:00	M47K019032	M47K019030	HGK016W	11/10/04	11/11/04
86-S1-068	K099-07	ND	20	NA	4	2	11/18/04 16:58	11/17/04 16:00	M47K019033	M47K019030	HGK016W	11/10/04	11/11/04
86-S1-0680L	K099-07T	ND	100	NA	20	10	11/18/04 17:01	11/17/04 16:00	M47K019034	M47K019030	HGK016W	11/10/04	11/11/04
86-S1-068WS	K099-07M	3.34J	20	NA	4	2	11/18/04 17:03	11/17/04 16:00	M47K019035	M47K019030	HGK016W	11/10/04	11/11/04
86-S1-063	K099-07S	3.6J	20	NA	4	2	11/18/04 17:05	11/17/04 16:00	M47K019036	M47K019030	HGK016W	11/10/04	11/11/04
86-S1-064	K099-02	ND	20	NA	4	2	11/18/04 17:07	11/17/04 16:00	M47K019037	M47K019030	HGK016W	11/09/04	11/11/04
86-S1-065	K099-03	ND	20	NA	4	2	11/18/04 17:09	11/17/04 16:00	M47K019038	M47K019030	HGK016W	11/09/04	11/11/04
86-S1-066	K099-04	ND	20	NA	4	2	11/18/04 17:12	11/17/04 16:00	M47K019039	M47K019030	HGK016W	11/10/04	11/11/04
86-S1-067	K099-05	ND	20	NA	4	2	11/18/04 17:14	11/17/04 16:00	M47K019040	M47K019030	HGK016W	11/10/04	11/11/04
86-S1-067	K099-06	ND	20	NA	4	2	11/18/04 17:16	11/17/04 16:00	M47K019041	M47K019030	HGK016W	11/10/04	11/11/04

RL: Reporting Limit

Revised Report  
7003

COLUMBIA ANALYTICAL SERVICES, INC.

**Client:** EMAX Laboratories, Inc.  
**Project:** 04K099  
**Sample Matrix:** Water

**Service Request No.:** K2409069  
**Date Received:** 11/13/04

**CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

**Sample Receipt**

Six water samples were received for analysis at Columbia Analytical Services on 11/13/04. No discrepancies were noted upon initial sample inspection. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

**Metals**

**Sample Notes and Discussion:**

Due to the high salinity of sample matrix, all samples required pre-treatment using reductive precipitation prior to analysis by ICP/MS EPA 200.8. Analysis of Selenium was performed by hydride EPA 7742 due to the saline sample matrix.

**Matrix Spike Recovery Exceptions:**

The matrix spike recovery of Chromium for sample 86-S1-068 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. The matrix spike outlier suggests a potential low bias in this matrix. No further corrective action was appropriate.

The matrix spike recovery of Cobalt for sample 86-S1-068 was outside the CAS control criteria as a result of the variability in the sample results. Variability between replicates was sufficient to bias the percent recoveries outside normal CAS control criteria. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicate the analysis was in control. Due to sample volume limitations no further corrective action was possible.

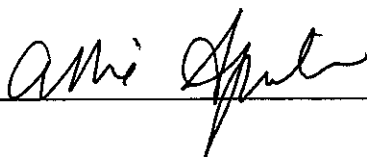
The control criterion for matrix spike recovery of Nickel for sample 86-S1-068 is not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

**Relative Percent Difference Exceptions:**

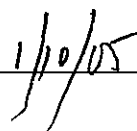
The Relative Percent Difference (RPD) for the replicate analysis of Cobalt in sample 86-S1-068 was outside the normal CAS control limits. Additional analysis of the associated field samples could not be performed because insufficient sample remained for testing. No further corrective action was possible. The data is flagged to indicate the problem.

No other anomalies associated with the analysis of these samples were observed.

Approved by \_\_\_\_\_



Date \_\_\_\_\_



## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409069

Project No.: 04K099

Date Collected: 11/09/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: . NA

Sample Name: 86-S1-063

Lab Code: K2409069-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	2.200		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	1.74		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	481		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.005	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.003	U	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.64		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	0.727		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.11		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.009	B	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	4.04		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.007	B	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	0.79		

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409069

Project No.: 04K099

Date Collected: 11/09/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: .NA

Sample Name: 86-S1-064

Lab Code: K2409069-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	2.810		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	1.79		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	477		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.004	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.003	U	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.62		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	1.150		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.15		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.009	U	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	4.08		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.001	B	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	0.50	B	

% Solids: 0.0

Comments:

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409069

Project No.: 04K099

Date Collected: 11/10/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: .NA

Sample Name: 86-S1-065

Lab Code: K2409069-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	3.400		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	3.81		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	149		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.004	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.003	U	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.73		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	0.775		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.14		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.143		
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	4.24		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.001	U	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	4.92		

% Solids: 0.0

Comments:

DISSOLVED METALS  
-1-  
INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409069

Project No.: 04K099

Date Collected: 11/10/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-066

Lab Code: K2409069-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	3.650		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	3.88		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	141		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.008	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.003	U	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.63		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	1.280		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.16		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.009	U	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	4.10		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.001	U	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	3.20		

% Solids: 0.0

Comments:



## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409069

Project No.: 04K099

Date Collected: 11/10/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-067

Lab Code: K2409069-005 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	2.720		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	11.5		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	250		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.015	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.005	B	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	1.65		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	1.980		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.17		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.021		
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	10.2		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.002	B	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	2.22		

% Solids: 0.0

Comments:

**DISSOLVED METALS**  
**-1-**  
**INORGANIC ANALYSIS DATA SHEET**

Client: EMAX Laboratories, Inc.

Service Request: K2409069

Project No.: 04K099

Date Collected: 11/10/04

Project Name: NA

Date Received: 11/13/04

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-068

Lab Code: K2409069-006 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	1.640		
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	4.91		
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	417		
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.009	B	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.006	B	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.63		N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	5.930		*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.17		
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.009	U	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	11.7		
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.001	U	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	0.42	B	

% Solids: 0.0

Comments:

DISSOLVED METALS  
-1-  
INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2409069

Project No.: 04K099

Date Collected: NA

Project Name: NA

Date Received: NA

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: Method Blank

Lab Code: K2409069-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	12/9/04	12/12/04	50	U	
Antimony	200.8	1.000	0.120	1	12/9/04	12/13/04	0.316	B	
Arsenic	200.8	0.50	0.02	1	12/29/04	1/3/05	0.02	U	
Barium	200.8	1.000	0.600	1	12/9/04	12/13/04	0.600	U	
Beryllium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.001	U	
Cadmium	200.8	0.020	0.003	1	12/29/04	1/3/05	0.003	U	
Chromium	200.8	0.20	0.04	1	12/29/04	1/3/05	0.04	U	N
Cobalt	200.8	0.020	0.002	1	12/29/04	1/3/05	0.002	U	*N
Copper	200.8	0.10	0.01	1	12/29/04	1/3/05	0.01	U	
Lead	200.8	0.020	0.009	1	12/29/04	1/3/05	0.009	U	
Nickel	200.8	0.20	0.02	1	12/29/04	1/3/05	0.02	U	
Selenium	7742	1.0	0.3	2	12/9/04	1/6/05	0.3	U	
Silver	200.8	0.020	0.005	1	12/29/04	1/3/05	0.005	U	
Thallium	200.8	0.020	0.001	1	12/29/04	1/3/05	0.001	U	
Vanadium	6010B	10.0	6.0	1	12/9/04	12/12/04	6.0	U	
Zinc	200.8	0.50	0.02	1	12/29/04	1/3/05	0.02	U	

% Solids: 0.0

Comments:

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86  
**Collection Date:** November 9 through November 10, 2004  
**LDC Report Date:** January 11, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc. & Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 04K099/K2409069

**Sample Identification**

86-S1-063  
86-S1-064\*\*  
86-S1-065  
86-S1-066\*\*  
86-S1-067  
86-S1-068  
86-S1-068MS  
86-S1-068DUP

**\*\*Indicates sample underwent EPA Level IV review**

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 and EPA Method 200.8 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Antimony	0.316 ug/L	All samples in SDG 04K099/K2409069
ICB/CCB	Antimony Nickel Selenium Vanadium	0.038 ug/L 0.31 ug/L 0.16 ug/L 7.2 ug/L	All samples in SDG 04K099/K2409069

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-063	Antimony	2.200 ug/L	2.200U ug/L
86-S1-064**	Antimony	2.810 ug/L	2.810U ug/L
86-S1-065	Antimony	3.400 ug/L	3.400U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-066**	Antimony	3.650 ug/L	3.650U ug/L
86-S1-067	Antimony	2.720 ug/L	2.720U ug/L
86-S1-068	Antimony	1.640 ug/L	1.640U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
86-S1-068MS (All samples in SDG 04K099/K2409069)	Arsenic Beryllium Chromium Copper Zinc	43 (75-125) 59 (75-125) 45 (75-125) 72 (75-125) 49 (75-125)	J (all detects) UJ (all non-detects)	A
86-S1-068MS (All samples in SDG 04K099/K2409069)	Cobalt	150 (75-125)	J (all detects)	A

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
86-S1-068DUP (All samples in SDG 04K099/K2409069)	Cobalt	79 ( $\leq 30$ )	-	J (all detects) UJ (all non-detects)	A

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
86-S1-064** (digested 12/13/04)	Indium-115	153.6 (60-125)	Antimony Barium	J (all detects) J (all detects)	A
86-S1-064** (digested 1/3/05)	Nickel-61 Indium-115	363.9 (60-125) 133.5 (60-125)	Nickel Arsenic Barium Cadmium Chromium Cobalt Silver Zinc	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A
86-S1-066** (digested 12/13/04)	Indium-115	151.5 (60-125)	Antimony Barium	J (all detects) J (all detects)	A
86-S1-066** (digested 1/3/05)	Lithium-6 Scandium-45 Nickel-61 Indium-115 Lutetium-175	138.3 (60-125) 130.9 (60-125) 234.5 (60-125) 141.5 (60-125) 128.1 (60-125)	Arsenic Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

## X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.



## XI. Sample Result Verification

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-S1-063 and 86-S1-064\*\* and samples 86-S1-065 and 86-S1-066\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-S1-063	86-S1-064**	
Antimony	2.200	2.810	24
Arsenic	1.74	1.79	3
Barium	481	477	1
Beryllium	0.005	0.004	22
Chromium	0.64	0.62	3
Cobalt	0.727	1.150	45
Copper	0.11	0.15	31
Lead	0.009	0.009U	Not calculable
Nickel	4.04	4.08	1
Thallium	0.007	0.001	150
Zinc	0.79	0.50	45

Compound	Concentration (ug/L)		RPD
	86-S1-065	86-S1-066**	
Antimony	3.400	3.650	7
Arsenic	3.81	3.88	2
Barium	149	141	6*
Beryllium	0.004	0.008	67
Chromium	0.73	0.63	15
Cobalt	0.775	1.280	49
Copper	0.14	0.16	13
Lead	0.143	0.009U	Not calculable
Nickel	4.24	4.10	3
Zinc	4.92	3.20	42

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Metals - Data Qualification Summary - SDG 04K099/K2409069**

SDG	Sample	Analyte	Flag	A or P	Reason
04K099/ K2409069	86-S1-063 86-S1-064** 86-S1-065 86-S1-066** 86-S1-067 86-S1-068	Arsenic Beryllium Chromium Copper Zinc	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
04K099/ K2409069	86-S1-063 86-S1-064** 86-S1-065 86-S1-066** 86-S1-067 86-S1-068	Cobalt	J (all detects)	A	Matrix spike analysis (%R)
04K099/ K2409069	86-S1-063 86-S1-064** 86-S1-065 86-S1-066** 86-S1-067 86-S1-068	Cobalt	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (RPD)
04K099/ K2409069	86-S1-064**	Antimony Barium Nickel Arsenic Cadmium Chromium Cobalt Silver Zinc	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Internal standards (%R)
04K099/ K2409069	86-S1-066**	Antimony Barium Arsenic Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Internal standards (%R)

**Moffett Air Field, Site 1, CTO 86****Metals - Laboratory Blank Data Qualification Summary - SDG 04K099/K2409069**

SDG	Sample	Analyte	Modified Final Concentration	A or P
04K099/ K2409069	86-S1-063	Antimony	2.200U ug/L	A
04K099/ K2409069	86-S1-064**	Antimony	2.810U ug/L	A
04K099/ K2409069	86-S1-065	Antimony	3.400U ug/L	A
04K099/ K2409069	86-S1-066**	Antimony	3.650U ug/L	A
04K099/ K2409069	86-S1-067	Antimony	2.720U ug/L	A
04K099/ K2409069	86-S1-068	Antimony	1.640U ug/L	A

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA, Site 1, CTO 85

**Collection Date:** November 9 through November 10, 2004

**LDC Report Date:** January 11, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04K099

**Sample Identification**

86-S1-070

86-S1-063

86-S1-064\*\*

86-S1-065

86-S1-066\*\*

86-S1-067

86-S1-068

86-S1-068MS

86-S1-068MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/15/04	Carbon disulfide	24.2	All samples in SDG 04K099	J (all detects)	A
	Hexachlorobutadiene	21.4		UJ (all non-detects) J (all detects) UJ (all non-detects)	

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MBLK1W	11/20/04	Acetone	3.3 ug/L	All samples in SDG 04K099

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.



## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

Samples 86-S1-063 and 86-S1-064\*\* and samples 86-S1-065 and 86-S1-066\*\* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-S1-063	86-S1-064**	
Carbon disulfide	0.5U	0.23	Not calculable

Compound	Concentration (ug/L)		RPD
	86-S1-065	86-S1-066**	
Carbon disulfide	0.5U	0.23	Not calculable

## **XVII. Field Blanks**

Sample 86-S1-070 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Airfield, MFA, Site 1, CTO 85**  
**Volatiles - Data Qualification Summary - SDG 04K099**

SDG	Sample	Compound	Flag	A or P	Reason
04K099	86-S1-070	Carbon disulfide	J (all detects)	A	Continuing calibration (ICV %D)
	86-S1-063		UJ (all non-detects)		
	86-S1-064**	Hexachlorobutadiene	J (all detects)		
	86-S1-065		UJ (all non-detects)		
	86-S1-066**				
	86-S1-067				
	86-S1-068				

**Moffett Airfield, MFA, Site 1, CTO 85**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 04K099**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA, Site 1, CTO 85

**Collection Date:** November 9 through November 10, 2004

**LDC Report Date:** January 11, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04K099

**Sample Identification**

86-S1-063

86-S1-064\*\*

86-S1-065

86-S1-066\*\*

86-S1-067

86-S1-068

86-S1-068MS

86-S1-068MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
12/2/04	Hexachlorocyclopentadiene	23.8	All samples in SDG 04K099	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-063 and 86-S1-064\*\* and samples 86-S1-065 and 86-S1-066\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA, Site 1, CTO 85**  
**Semivolatiles - Data Qualification Summary - SDG 04K099**

SDG	Sample	Compound	Flag	A or P	Reason
04K099	86-S1-063 86-S1-064** 86-S1-065 86-S1-066** 86-S1-067 86-S1-068	Hexachlorocyclopentadiene	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)

**Moffett Airfield, MFA, Site 1, CTO 85**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04K099**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA, Site 1, CTO 86

**Collection Date:** November 9 through November 10, 2004

**LDC Report Date:** January 11, 2005

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04K099

**Sample Identification**

86-S1-063

86-S1-064\*\*

86-S1-065

86-S1-066\*\*

86-S1-067

86-S1-068

86-S1-068MS

86-S1-068MSD

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## **III. Initial Calibration**

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-068MS/MSD (86-S1-068)	Aldrin	148 (47-125)	-	-	J (all detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Pesticide Cleanup Checks

### a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

### b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

## XI. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and Reported CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

### **XIV. Field Duplicates**

Samples 86-S1-063 and 86-S1-064\*\* and samples 86-S1-065 and 86-S1-066\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA, Site 1, CTO 86**  
**Chlorinated Pesticides - Data Qualification Summary - SDG 04K099**

SDG	Sample	Compound	Flag	A or P	Reason
04K099	86-S1-068	Aldrin	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Airfield, MFA, Site 1, CTO 86**  
**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 04K099**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA, Site 1, CTO 86  
**Collection Date:** November 9 through November 10, 2004  
**LDC Report Date:** January 11, 2005  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 04K099

**Sample Identification**

86-S1-063  
86-S1-064\*\*  
86-S1-065  
86-S1-066\*\*  
86-S1-067  
86-S1-068  
86-S1-068MS  
86-S1-068MSD

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-063 and 86-S1-064\*\* and samples 86-S1-065 and 86-S1-066\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA, Site 1, CTO 86**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 04K099**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA, Site 1, CTO 86**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 04K099**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

ORIGINAL

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** November 9 through November 10, 2004

**LDC Report Date:** January 11, 2005

**Matrix:** Water

**Parameters:** Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04K099

**Sample Identification**

86-S1-063

86-S1-064\*\*

86-S1-065

86-S1-066\*\*

86-S1-067

86-S1-068

86-S1-068MS

86-S1-068MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample was not required by the method.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-068MS/MSD (All samples in SDG 04K099)	Mercury	67 (75-125)	72 (75-125)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

Samples 86-S1-063 and 86-S1-064\*\* and samples 86-S1-065 and 86-S1-066\*\* were identified as field duplicates. No mercury was detected in any of the samples.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.



**Moffett Airfield, Site 1, CTO 86**  
**Mercury - Data Qualification Summary - SDG 04K099**

SDG	Sample	Analyte	Flag	A or P	Reason
04K099	86-S1-063 86-S1-064** 86-S1-065 86-S1-066** 86-S1-067 86-S1-068	Mercury	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Airfield, Site 1, CTO 86**  
**Mercury - Laboratory Blank Data Qualification Summary - SDG 04K099**

No Sample Data Qualified in this SDG

## **SUPPLEMENTAL SAMPLING**

**JULY 2004**

NUMBER **05318**

**CHAIN-OF-CUSTODY RECORD**

PROJECT NAME <b>SITE 1 BASELINE</b>		PURCHASE ORDER NO. <b>20848 TASK 28</b>		ANALYSES REQUIRED										LABORATORY NAME <b>EMAX</b>		Project Information Section Do not submit to Laboratory							
PROJECT LOCATION <b>MOFFETT F.A.</b>		PROJECT NO. <b>1990.086E</b>												LABORATORY ID (FOR LABORATORY)									
SAMPLER NAME <b>Bill OGLE</b>		SAMPLER SIGNATURE <i>[Signature]</i>																					
PROJECT CONTACT <b>LISA BIENKOWSKI</b>		AIRBILL NUMBER <b>847882738737</b>												COMMENTS <b>04 G024</b>		LOCATION		DEPTH		QC			
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3 4		T TYPE	T A T											START	END				
86-SI-029	7/6/04	1040	3	X		W	10 DAY	X	X	X	X	X	X	X	X	X	X	W1-16		Reg			
86-SI-028	7/6/04	1100	3	X		W	10 DAY	X	X	X	X	X	X	X	X	X	X	W1-24		Reg			
86-SI-027	7/6/04	1145	3	X		W	10 DAY	X	X	X	X	X	X	X	X	X	X	W1-8		Reg			
86-SI-026	7/6/04	1230	3	X		W	10 DAY	X	X	X	X	X	X	X	X	X	X	W1-5		Reg			
86-SI-025	7/6/04	1415	3	X		W	10 DAY	X	X	X	X	X	X	X	X	X	X	W1-22		Reg			
86-SI-024	7/6/04	1500	3	X		W	10 DAY	X	X	X	X	X	X	X	X	X	X	W1-12R		Reg			
86-SI-023	7/6/04	1600	3	X		W	10 DAY	X	X	X	X	X	X	X	X	X	X	W1-14	-	Reg			
86-SI-022	7/6/04	1600	9	X		W	10 DAY	X	X	X	X	X	X	X	X	X	X	W1-14	-	Reg			
<del>86-SI-021</del>	<del>7/6/04</del>	<del>1515</del>	<del>3</del>	<del>X</del>		<del>W</del>	<del>10 DAY</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>W1-23</del>					
										7/7/04													
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE <b>7/7/04</b>		RECEIVED BY (Signature) <i>[Signature]</i>		LABORATORY INSTRUCTIONS/COMMENTS <b>Dissolved Mercury Samples are Field Filtered</b>															SAMPLING COMMENT:  <b>R2/04 Baseline</b>		
COMPANY <b>FW</b>		TIME <b>1300</b>		COMPANY <b>Fedex</b>		COMPOSITE DESCRIPTION  <b>N/A</b>																	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)																	
COMPANY		TIME		COMPANY		TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																	

NUMBER **05319**

**CHAIN-OF-CUSTODY RECORD**

PROJECT NAME <b>SITE 1 BASELINE</b>		PURCHASE ORDER NO. <b>20848 TASK 28</b>		<b>ANALYSES REQUIRED</b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>GP 8270C (EXTENDED USE)</span> <span>GP 8270A (EXTENDED USE)</span> </div>										LABORATORY NAME <b>EMAX</b>		<b>Project Information Section</b> <b>Do not submit to Laboratory</b>					
PROJECT LOCATION <b>MOFFETT F.A.</b>		PROJECT NO. <b>1990.086E</b>												LABORATORY ID (FOR LABORATORY) <b>04G024</b>							
SAMPLER NAME <b>BILLY OGILVIE</b>		SAMPLER SIGNATURE <i>[Signature]</i>												COMMENTS							
PROJECT CONTACT <b>LISA BIEWKOWSKI</b>		AIRBILL NUMBER <b>84788 2738737</b>																			
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		TYPE	T A T											LOCATION	DEPTH		QC
				3	4														START	END	
86-SI-020	7/7/04	0740	3	X		W	10 DAY	<del>GP 8270C (EXTENDED USE)</del> <del>GP 8270A (EXTENDED USE)</del>										W1-19	-	-	REG
86-SI-019	7/7/04	1040	3		X	W	10 DAY											W1-15	-	-	FO
86-SI-018	7/7/04	1040	3	X		W	10 DAY											W1-15	-	-	REG
86-SI-017	7/7/04	1140	3	X		W	10 DAY											W1-1	-	-	REG
<del> <div style="font-size: 2em; transform: rotate(-15deg);"> <i>[Signature]</i> 7/7/04 </div> </del>																					
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE <b>7/7/04</b>		RECEIVED BY (Signature) <i>[Signature]</i>		<b>LABORATORY INSTRUCTIONS/COMMENTS</b> <b>DISSOLVED MERCURY SAMPLES ARE FIELD FILTERED</b>												<b>SAMPLING COMMENT:</b> <b>R2 / 04</b> <b>Base line</b>			
COMPANY <b>TFW1</b>		TIME <b>1300</b>		COMPANY <b>FEDER</b>																	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		<b>COMPOSITE DESCRIPTION</b> <b>N/A</b>															
COMPANY		TIME		COMPANY																	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		<b>SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)</b> TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN															
COMPANY		TIME		COMPANY																	

**EMAX**  
**LABORATORIES, INC.**  
1835 W. 205th Street  
Torrance, CA 90501  
Tel: (310) 618-8889  
Fax: (310) 618-0818

Date: 07-22-2004  
EMAX Batch No.: 04G024

Attn: Lynn Jefferson

Tetra Tech FW, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86

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Enclosed is the Laboratory report for samples received on  
07/08/04. The data reported include :

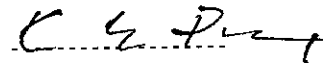
Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-029	G024-01	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-028	G024-02	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-027	G024-03	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-026	G024-04	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-025	G024-05	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-024	G024-06	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-023	G024-07	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-022	G024-08	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-020	G024-09	07/07/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-019	G024-10	07/07/04	WATER	SEMIVOLATILE ORGANICS BY GCMS

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-018	G024-11	07/07/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-017	G024-12	07/07/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-022MS	G024-08M	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-022MSD	G024-08S	07/06/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.  
Laboratory Director

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04G024

**SW 3520C/8270C**  
**SEMI VOLATILE ORGANICS BY GC/MS**

Twelve (12) water samples were received on 07/08/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

Sample G024-08 was spiked. All recoveries were within QC limit.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.



SW 3520C/B270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/06/04
Project : MFA, SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 046024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-029	Date Analyzed: 07/15/04 21:43
Lab Samp ID: G024-01	Dilution Factor: .94
Lab File ID: RGX080	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	71	25-134
2-FLUOROBIPHENYL	64	43-125
2-FLUOROPHENOL	54	25-125
NITROBENZENE-D5	63	32-125
PHENOL-D5	60	25-125
TERPHENYL-D14	86	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/06/04
Project : MFA, SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-028	Date Analyzed: 07/15/04 22:18
Lab Samp ID: G024-02	Dilution Factor: 94
Lab File ID: RGX081	Matrix: WATER
Ext Btch ID: SVG008W	% Moisture: NA
Calib. Ref.: RFX031	Instrument ID: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	5.6
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLORISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	2.4
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	77	25-134
2-FLUOROBIPHENYL	76	43-125
2-FLUOROPHENOL	67	25-122
NITROBENZENE-D5	79	32-122
PHENOL-D5	71	23-122
TERPHENYL-D14	92	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

3005

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/06/04
Project : MFA SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-027	Date Analyzed: 07/15/04 22:53
Lab Samp ID: G024-03	Dilution Factor: .94
Lab File ID: RGX082	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHthalate	ND	9.4	4.7
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	2.2
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	81	25-134
2-FLUOROBIPHENYL	74	43-125
2-FLUOROPHENOL	67	25-125
NITROBENZENE-D5	78	32-125
PHENOL-D5	71	25-125
TERPHENYL-D14	95	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/06/04
Project : MFA SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-026	Date Analyzed: 07/15/04 23:28
Lab Samp ID: G024-04	Dilution Factor: .94
Lab File ID: RGX083	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-5-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZ(D,A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	7.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	5.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	80	25-134
3-FLUOROBIPHENYL	69	43-125
3-FLUOROPHENOL	65	25-125
NITROBENZENE-D5	78	32-125
PHENOL-D5	69	25-125
TERPHENYL-D14	92	42-125

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/06/04
Project : MFA SITE 1, CTO 86	Date Received: 07/08/04
Batch No.: 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-025	Date Analyzed: 07/16/04 00:04
Lab Samp ID: G024-05	Dilution Factor: .94
Lab File ID: RGX084	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	76	25-134
2-FLUOROBIPHENYL	75	43-125
2-FLUOROPHENOL	64	25-125
NITROBENZENE-D5	79	32-125
PHENOL-D5	69	25-125
TERPHENYL-D14	99	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/06/04
Project : MFA SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-024	Date Analyzed: 07/16/04 00:39
Lab Samp ID: G024-06	Dilution Factor: .94
Lab File ID: RGX085	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : 1-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	19	5.6
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	71	25-134
2-FLUOROBIPHENYL	68	43-125
2-FLUOROPHENOL	61	25-125
NITROBENZENE-D5	75	32-125
PHENOL-D5	64	25-125
TERPHENYL-D14	92	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/06/04
Project : MFA SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 046024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-023	Date Analyzed: 07/16/04 01:14
Lab Samp ID: G024-07	Dilution Factor: .94
Lab File ID: RGX086	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	82	25-134	
2-FLUOROBIPHENYL	73	43-125	
2-FLUOROPHENOL	65	25-125	
NITROBENZENE-D5	79	32-125	
PHENOL-D5	70	25-125	
TERPHENYL-D14	101	42-126	

RL: Reporting Limit

(1): Cannot be separated from 3-Methylphenol

(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/06/04
Project : MFA SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-022	Date Analyzed: 07/16/04 01:49
Lab Samp ID: G024-08	Dilution Factor: .95
Lab File ID: RGX087	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	19	9.5
2,4-DINITROTOLUENE	ND	19	9.5
2,6-DINITROTOLUENE	ND	19	5.7
2-CHLORONAPHTHALENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	9.5	4.8
2-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	19	5.7
2-NITROPHENOL	ND	9.5	4.8
3,3'-DICHLOROENZIDINE	ND	9.5	4.8
3-NITROANILINE	ND	19	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.5
4-BROMOPHENYL-PHENYL ETHER	ND	9.5	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	9.5	4.8
4-NITROPHENOL	ND	19	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.5
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.5	4.8
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DI-N-BUTYLPHTHALATE	ND	9.5	4.8
DI-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	19	4.8
DIETHYLPHTHALATE	ND	19	5.7
DIMETHYLPHTHALATE	ND	9.5	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	19	5.7
HEXACHLOROBENZENE	ND	9.5	4.8
HEXACHLOROCYCLOPENTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSO-DIPHENYLAMINE (2)	ND	9.5	4.8
NITROBENZENE	ND	9.5	4.8
PENTACHLOROPHENOL	ND	19	9.5
PHENANTHRENE	ND	19	5.7
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
1,1'-BIPHENYL	ND	9.5	4.8
ACETOPHENONE	ND	9.5	4.8
ATRAZINE	ND	19	5.7
BENZALDEHYDE	ND	9.5	4.8
CAPROLACTAM	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	68	25-134	
2-FLUOROBIPHENYL	59	43-125	
2-FLUOROPHENOL	48	25-125	
NITROBENZENE-D5	58	32-125	
PHENOL-D5	54	25-125	
TERPHENYL-D14	92	42-125	

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine



SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/07/04
Project : MFA SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-020	Date Analyzed: 07/16/04 03:34
Lab Samp ID: G024-09	Dilution Factor: .94
Lab File ID: RGX090	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : 1-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,1)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	4.7
DIETHYLPHTHALATE	ND	19	2.9
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	82	25-134
2-FLUOROBIPHENYL	76	43-125
2-FLUOROPHENOL	65	25-125
NITROBENZENE-D5	78	32-125
PHENOL-D5	69	25-125
TERPHENYL-D14	107	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/07/04
Project : MFA, SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-019	Date Analyzed: 07/16/04 04:09
Lab Samp ID: G024-10	Dilution Factor: 94
Lab File ID: RGX091	Matrix : WATER
Ext. Btch ID: SV6008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	5.6
2,6-DINITROTOLUENE	ND	19	4.7
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLORANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	67	25-134
2-FLUOROBIPHENYL	65	43-123
2-FLUOROPHENOL	57	25-122
NITROBENZENE-D5	69	32-122
PHENOL-D5	61	25-123
TERPHENYL-D14	85	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/07/04
Project : MFA SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-018	Date Analyzed: 07/19/04 15:55
Lab Samp ID: G024-11W	Dilution Factor: .94
Lab File ID: RGX123	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHthalate	ND	19	4.7
DIMETHYLPHthalate	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYClopentadiene	ND	9.4	4.7
HEXACHLORoETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	69	25-134
2-FLUOROBIPHENYL	72	43-125
2-FLUOROPHENOL	66	25-125
NITROBENZENE-D5	77	25-125
PHENOL-D5	70	25-125
TERPHENYL-D14	88	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 07/07/04
Project : MFA, SITE 1, CTO 86	Date Received: 07/08/04
Batch No. : 04G024	Date Extracted: 07/12/04 15:30
Sample ID: 86-S1-017	Date Analyzed: 07/19/04 16:31
Lab Samp ID: G024-12W	Dilution Factor: .94
Lab File ID: RGX124	Matrix : WATER
Ext Btch ID: SVG008W	% Moisture : NA
Calib. Ref.: RFX031	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	5.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	73	25-134
2-FLUOROBIPHENYL	71	43-125
2-FLUOROPHENOL	68	25-125
NITROBENZENE-D5	81	32-125
PHENOL-D5	72	25-125
TERPHENYL-D14	94	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04G024

**METHOD 7470A**  
**DISSOLVED MERCURY BY COLD VAPOR**

Twelve (12) water samples were received on 07/08/04 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analysis met the holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within the control limits.

4. Serial Dilution/Post Analytical Spike

Sample G024-01 was analyzed for serial dilution. % Difference was not evaluated since parent sample was not detected. Analytical spike was performed and met the QC requirement.

5. Matrix Spike/Matrix Spike Duplicate

Sample G024-08 was spiked. Recoveries were within QC limit. %RPD was above QC.

6. Sample Analysis

Sample analyses were performed within the QC requirements. All criteria were met with the aforementioned exception.

Samples were diluted at 20X due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FM, INC.  
Project : HFA, SITE 1, CTO 86  
Batch No. : 046024

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	ENAX SAMPLE ID	RESULTS (ug/L)	DLF	MDIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGG006MB	ND	1	NA	2	1	07/13/0412:04	07/12/0413:00	M47G007010	M47G007008	HGG006W	NA	07/12/04
LCS1W	HGG006WL	5.05	1	NA	2	1	07/13/0412:07	07/12/0413:00	M47G007011	M47G007008	HGG006W	NA	07/12/04
LCD1W	HGG006MC	5.02	1	NA	2	1	07/13/0412:09	07/12/0413:00	M47G007012	M47G007008	HGG006W	NA	07/12/04
86-S1-029AS	G024-01A	38	20	NA	4	2	07/13/0412:55	07/12/0413:00	M47G007031	M47G007020	HGG006W	07/06/04	07/08/04
86-S1-029	G024-01	ND	20	NA	4	2	07/13/0412:14	07/12/0413:00	M47G007014	M47G007008	HGG006W	07/06/04	07/08/04
86-S1-029DL	G024-01T	ND	100	NA	20	10	07/13/0412:16	07/12/0413:00	M47G007015	M47G007008	HGG006W	07/06/04	07/08/04
86-S1-028	G024-02	ND	20	NA	4	2	07/13/0412:18	07/12/0413:00	M47G007016	M47G007008	HGG006W	07/06/04	07/08/04
86-S1-027	G024-03	ND	20	NA	4	2	07/13/0412:21	07/12/0413:00	M47G007017	M47G007008	HGG006W	07/06/04	07/08/04
86-S1-026	G024-04	ND	20	NA	4	2	07/13/0412:23	07/12/0413:00	M47G007018	M47G007008	HGG006W	07/06/04	07/08/04
86-S1-025	G024-05	ND	20	NA	4	2	07/13/0412:25	07/12/0413:00	M47G007019	M47G007008	HGG006W	07/06/04	07/08/04
86-S1-024	G024-06	ND	20	NA	4	2	07/13/0412:33	07/12/0413:00	M47G007022	M47G007020	HGG006W	07/06/04	07/08/04
86-S1-023	G024-07	ND	20	NA	4	2	07/13/0412:36	07/12/0413:00	M47G007023	M47G007020	HGG006W	07/06/04	07/08/04
86-S1-022	G024-08	ND	20	NA	4	2	07/13/0412:38	07/12/0413:00	M47G007024	M47G007020	HGG006W	07/06/04	07/08/04
86-S1-022MS	G024-08M	4.1	20	NA	4	2	07/13/0414:04	07/12/0413:00	M47G008010	M47G008008	HGG006W	07/06/04	07/08/04
86-S1-022MSD	G024-08S	5.22	20	NA	4	2	07/13/0414:06	07/12/0413:00	M47G008011	M47G008008	HGG006W	07/06/04	07/08/04
86-S1-020	G024-09	ND	20	NA	4	2	07/13/0412:45	07/12/0413:00	M47G007027	M47G007020	HGG006W	07/07/04	07/08/04
86-S1-019	G024-10	ND	20	NA	4	2	07/13/0412:47	07/12/0413:00	M47G007028	M47G007020	HGG006W	07/07/04	07/08/04
86-S1-018	G024-11	ND	20	NA	4	2	07/13/0412:50	07/12/0413:00	M47G007029	M47G007020	HGG006W	07/07/04	07/08/04
86-S1-017	G024-12	ND	20	NA	4	2	07/13/0412:52	07/12/0413:00	M47G007030	M47G007020	HGG006W	07/07/04	07/08/04

RL: Reporting Limit

7002

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** July 6 through July 7, 2004  
**LDC Report Date:** August 10, 2004  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04G024

**Sample Identification**

86-S1-029  
86-S1-028  
86-S1-027\*\*  
86-S1-026  
86-S1-025  
86-S1-024  
86-S1-023\*\*  
86-S1-022  
86-S1-020  
86-S1-019\*\*  
86-S1-018  
86-S1-017  
86-S1-022MS  
86-S1-022MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The mean percent difference (%D) between the initial calibration RRF and the continuing calibration RRF was less than or equal to 20.0% and less than or equal to 25.0% for individual compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-023\*\* and 86-S1-022 and samples 86-S1-019\*\* and 86-S1-018 were identified as field duplicates. No semivolatiles were detected in any of the samples.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**

**Semivolatiles - Data Qualification Summary - SDG 04G024**

No Sample Data Qualified in this SDG

**Moffett Airfield, CTO 86**

**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04G024**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86

**Collection Date:** July 6, 2004

**LDC Report Date:** August 10, 2004

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04G024

**Sample Identification**

86-S1-029

86-S1-028

86-S1-027\*\*

86-S1-026

86-S1-025

86-S1-024

86-S1-023\*\*

86-S1-022

86-S1-020

86-S1-019\*\*

86-S1-018

86-S1-017

86-S1-022MS

86-S1-022MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample was not required by the method.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

Samples 86-S1-023\*\* and 86-S1-022 and samples 86-S1-020 and 86-S1-019\*\* were identified as field duplicates. No dissolved mercury was detected in any of the samples.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.



**Moffett Airfield, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 04G024**

No Sample Data Qualified in this SDG

**Moffett Airfield, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 04G024**


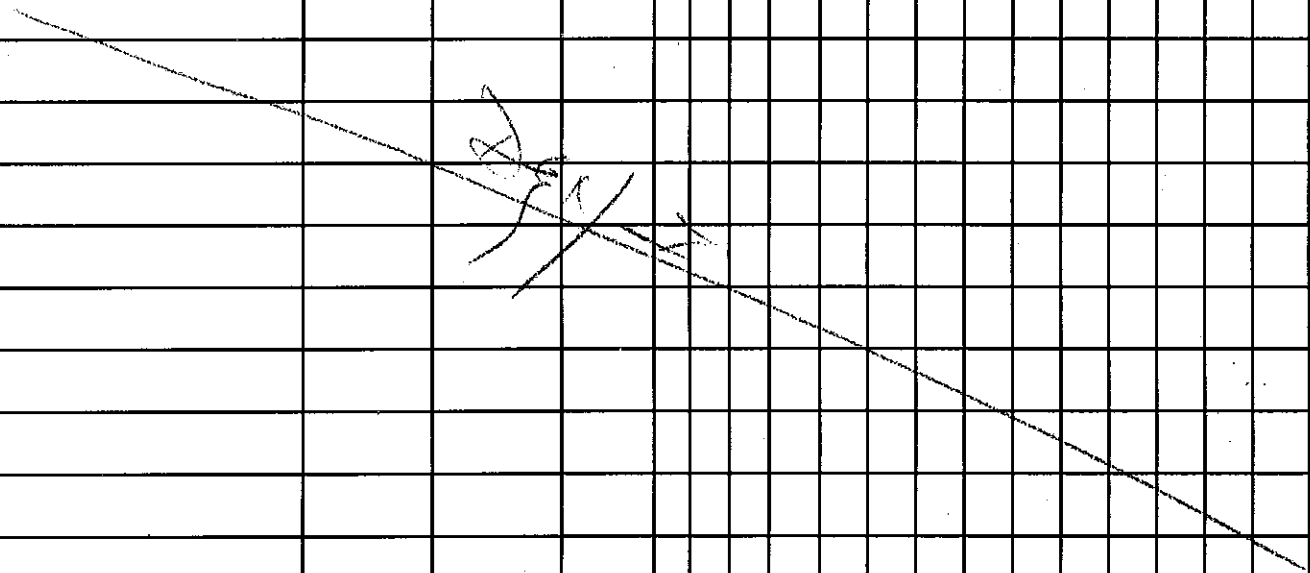
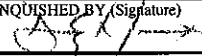
No Sample Data Qualified in this SDG

**AUGUST 2004**



NUMBER

## CHAIN-OF-CUSTODY RECORD

PROJECT NAME Site 1 - R3/04		PURCHASE ORDER NO. 20848 - Task 28		ANALYSES REQUIRED										LABORATORY NAME EMAX		Project Information Section Do not submit to Laboratory							
PROJECT LOCATION Moffett		PROJECT NO. 1990.0865												LABORATORY ID (FOR LABORATORY) 04H1160									
SAMPLER NAME D. Harrison		SAMPLER SIGNATURE 												LABORATORY COMMENTS									
PROJECT CONTACT Lynn Jefferson		AIRBILL NUMBER 847582738781																					
SAMPLE ID		DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3 4		T Y P E	T A T											LOCATION		DEPTH START END		QC
86-S1-030		8/19/01	1405	3	X		W	day	XX										w1-1R				eg
																							
RELINQUISHED BY (Signature) 		DATE 8/19/01	RECEIVED BY (Signature) FLD X		LABORATORY INSTRUCTIONS/COMMENTS D. Merc. was field filtered															SAMPLING COMMENT: Site 1 R3/04 Baseline			
COMPANY HFW		TIME 1500	COMPANY																				
RELINQUISHED BY (Signature)		DATE	RECEIVED BY (Signature)		COMPOSITE DESCRIPTION																		
COMPANY		TIME	COMPANY																				
RELINQUISHED BY (Signature)		DATE	RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)																		
COMPANY		TIME	COMPANY		TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																		

0015481-IN

# CHAIN-OF-CUSTODY RECORD

PROJECT NAME Site 1 - R3/04		PURCHASE ORDER NO. 20848-Task28		ANALYSES REQUIRED										LABORATORY NAME EMAX		Project Information Section Do not submit to Laboratory						
PROJECT LOCATION Moffett		PROJECT NO. 1990.086E												LABORATORY ID (FOR LABORATORY) 84H160								
SAMPLER NAME Duane Harrison		SAMPLER SIGNATURE <i>[Signature]</i>																				
PROJECT CONTACT Lynn Jefferson		AIRBILL NUMBER 847882758781																				
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		T TYPE	T A T											COMMENTS	LOCATION	DEPTH		QC
				3	4			START	END													
86-S1-031	8/18/04	1018	3	X		W	10 day	X	X									W1-15			Reg	
86-S1-032	8/18/04	1105	3	X		W	10 day	X	X									W1-19			Reg	
86-S1-034	8/18/04	1145	3	X		W	10 day	X	X									W1-14			Reg	
86-S1-035	8/18/04	1415	3	X		W	10 day	X	X									W1-12R			Reg	
86-S1-036	8/18/04	1425	3		X	W	10 day	X	X									W1-12R			FD	
86-S1-037	8/19/04	0848	9	X		W	10 day	X	X							Run MS/MSD	W1-22			Reg		
86-S1-038	8/19/04	0935	3	X		W	10 day	X	X								W1-5			Reg		
86-S1-039	8/19/04	0945	3		X	W	10 day	X	X								W1-5			D		
86-S1-040	8/19/04	1020	3	X		W	10 day	X	X								W1-8			Reg		
86-S1-041	8/19/04	1120	3		X	W	10 day	X	X								W1-24			Reg		
86-S1-042	8/19/04	1305	3	X		W	10 day	X	X								W1-16			Reg		
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE 8/19/04	RECEIVED BY (Signature) <i>[Signature]</i>		LABORATORY INSTRUCTIONS/COMMENTS D. Mex. samples were field filtered										SAMPLING COMMENT: Site 1 R3/04 Baseline							
COMPANY FW		TIME 7500	COMPANY																			
RELINQUISHED BY (Signature)		DATE	RECEIVED BY (Signature)		COMPOSITE DESCRIPTION																	
COMPANY		TIME	COMPANY																			
RELINQUISHED BY (Signature)		DATE	RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)																	
COMPANY		TIME	COMPANY		TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																	



**LABORATORIES, INC.**

1835 W. 205th Street

Torrance, CA 90501

Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 09-13-2004

EMAX Batch No.: 04H160

Attn: Lynn Jefferson

Tetra Tech FW, Inc.

1940 E Deere Ave, Suite 200

Santa Ana CA 92705

Subject: Laboratory Report

Project: MFA, Site 1, CTO 86

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Enclosed is the Laboratory report for samples received on  
08/20/04. The data reported include :

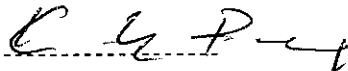
Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-031	H160-01	08/18/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-032	H160-02	08/18/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-034	H160-03	08/18/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-035	H160-04	08/18/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-036	H160-05	08/18/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-037	H160-06	08/19/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-038	H160-07	08/19/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-039	H160-08	08/19/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-040	H160-09	08/19/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-041	H160-10	08/19/04	WATER	MERCURY DISSOLVED

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-042	H160-11	08/19/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-030	H160-12	08/19/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-037MS	H160-06M	08/19/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-037MSD	H160-06S	08/19/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.  
Laboratory Director

# **CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04H160

## **SW 3520C/8270C SEMI VOLATILE ORGANICS BY GC/MS**

Twelve (12) water samples were received on 08/20/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time  
Analytical holding time was met.
2. Tuning and Calibration  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. Method Blank  
Method blank was free of contamination at the reporting limit.
4. Surrogate Recovery  
Recoveries were within QC limit.
5. Lab Control Sample/Lab Control Sample Duplicate  
Recoveries were within QC limit.
6. Matrix Spike/Matrix Spike Duplicate  
Sample H160-06 was spiked. All recoveries were within QC limit. RPD of 4-Nitrophenol was above QC.
7. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.  
  
Bis(2-Ethylhexyl)Phthalate found in sample H160-08 was from lab contamination which was not systematic since method blank, LCS/LCSD and the rest of the samples were devoid of this analyte. Furthermore, re-extraction, albeit out of holding time was free of this analyte. 4-Nitrophenol in MSD of H160-06 was manually reintegrated to correct for retention time shift.

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW INC.	Date Collected: 08/18/04
Project : MFA SITE 1, CTO 86	Date Received: 08/20/04
Batch No. : 04H160	Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-031	Date Analyzed: 09/02/04 22:47
Lab Samp ID: H160-01	Dilution Factor: .94
Lab File ID: R1X055	Matrix: WATER
Ext Btch ID: SVH040W	% Moisture: NA
Calib. Ref.: R1X007	Instrument ID: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	2.3
ATRAZINE	ND	9.4	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	74	25-134
2-FLUOROBIPHENYL	60	43-125
2-FLUOROPHENOL	45	23-125
NITROBENZENE-D5	55	36-125
PHENOL-D5	54	23-125
TERPHENYL-D14	92	42-126

RL: Reporting Limit

(1): Cannot be separated from 3-Methylphenol

(2): Cannot be separated from Diphenylamine



SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 08/18/04
Project : MFA SITE 1, CTO 86	Date Received: 08/20/04
Batch No. : 04H160	Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-032	Date Analyzed: 09/02/04 23:22
Lab Samp ID: H160-02	Dilution Factor: .94
Lab File ID: RIX056	Matrix : WATER
Ext Btch ID: SVH040W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLORDANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	69	25-134
2-FLUOROBIPHENYL	62	43-125
2-FLUOROPHENOL	52	25-125
NITROBENZENE-D5	67	26-126
PHENOL-D5	81	26-126
TERPHENYL-D14	86	42-126

RL: Reporting Limit

(1): Cannot be separated from 3-Methylphenol

(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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Client   : TETRA TECH FW, INC.      Date Collected: 08/18/04
Project  : MFA SITE 1, CTO 86      Date Received: 08/20/04
Batch No.: 04H160                  Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-034               Date Analyzed: 09/02/04 23:57
Lab Samp ID: H160-03               Dilution Factor: .94
Lab File ID: RIX057                Matrix: WATER
Ext Btch ID: SVH040W               % Moisture: NA
Calib. Ref.: RIX007                Instrument ID: T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DITHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	68	25-134
2-FLUOROBIPHENYL	55	43-125
2-FLUOROPHENOL	55	25-125
NITROBENZENE-D5	60	25-125
PHENOL-D5	50	25-125
TERPHENYL-D14	84	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 08/18/04
Project     : MFA SITE 1, CTO 86      Date Received: 08/20/04
Batch No.   : 04H160                 Date Extracted: 08/25/04 16:00
Sample ID   : 86-S1-035              Date Analyzed: 09/03/04 00:32
Lab Samp ID : H160-04                Dilution Factor: .94
Lab File ID : RIX058                 Matrix: WATER
Ext Btch ID : SVH040W                % Moisture: NA
Calib. Ref. : RIX007                 Instrument ID : T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	5.6
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	19	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.5
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	67	25-134
2-FLUOROBIPHENYL	50	43-125
2-FLUOROPHENOL	40	25-125
NITROBENZENE-D5	48	36-125
PHENOL-D5	45	25-125
TERPHENYL-D14	87	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 08/18/04
Project : MFA SITE 1, CTO 86	Date Received: 08/20/04
Batch No. : 04H160	Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-036	Date Analyzed: 09/03/04 01:08
Lab Samp ID: H160-05	Dilution Factor: .94
Lab File ID: RIX059	Matrix: WATER
Ext Btch ID: SVH040W	% Moisture: NA
Calib. Ref.: RIX007	Instrument ID: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	52	25-134
2-FLUOROBIPHENYL	35*	43-125
2-FLUOROPHENOL	30	25-125
NITROBENZENE-D5	34	25-125
PHENOL-D5	34	25-125
TERPHENYL-D14	84	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW INC.	Date Collected: 08/19/04
Project : MFA SITE 1, CTO 86	Date Received: 08/20/04
Batch No. : 04H160	Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-037	Date Analyzed: 09/02/04 21:01
Lab Samp ID: H160-06	Dilution Factor: .94
Lab File ID: R1X052	Matrix: WATER
Ext Btch ID: SVH040W	% Moisture: NA
Calib. Ref.: R1X007	Instrument ID: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	2.3
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	76	25-134
2-FLUOROBIPHENYL	75	43-125
2-FLUOROPHENOL	63	25-125
NITROBENZENE-D5	74	32-125
PHENOL-D5	65	25-125
TERPHENYL-D14	103	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 08/19/04
Project : MFA SITE 1, CTO 86	Date Received: 08/20/04
Batch No. : 04H160	Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-038	Date Analyzed: 09/03/04 20:26
Lab Samp ID: H160-07	Dilution Factor: 94
Lab File ID: R1X078	Matrix: WATER
Ext Btch ID: SVH040W	% Moisture: NA
Calib. Ref.: R1X007	Instrument ID: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIEHTYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	64	25-134
2-FLUOROBIPHENYL	49	43-125
2-FLUOROPHENOL	33	25-125
NITROBENZENE-D5	39	32-125
PHENOL-D5	43	25-125
TERPHENYL-D14	101	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 08/19/04
Project : MFA, SITE 1, CTO 86	Date Received: 08/20/04
Batch No. : 04H160	Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-039	Date Analyzed: 09/03/04 21:01
Lab Samp ID: H160-08	Dilution Factor: .94
Lab File ID: RIX079	Matrix : WATER
Ext Btch ID: SVH040W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	750*	19	9.4
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	66	25-134
2-FLUOROBIPHENYL	43	43-125
2-FLUOROPHENOL	57	25-125
NITROBENZENE-D5	43	32-125
PHENOL-D5	40	25-125
TERPHENYL-D14	105	42-126

RL: Reporting Limit

(1): Cannot be separated from 3-Methylphenol

(2): Cannot be separated from Diphenylamine

 \* Suspected lab contamination. Sample was reextracted out of holding time and reanalyzed.  
 No bis(2-ethylhexyl)phthalate was found.

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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Client      : TETRA TECH FW, INC.      Date Collected: 08/19/04
Project     : MFA SITE 1, CTO 86      Date Received: 08/20/04
Batch No.   : 04H160                  Date Extracted: 08/25/04 16:00
Sample ID   : 86-S1-040               Date Analyzed: 09/03/04 21:36
Lab Samp ID : H160-09                 Dilution Factor: .94
Lab File ID : RIX080                  Matrix: WATER
Ext Btch ID : SVH040W                 % Moisture: NA
Calib. Ref. : RIX007                  Instrument ID: T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	78	25-134
2-FLUOROBIPHENYL	73	43-125
2-FLUOROPHENOL	62	23-125
NITROBENZENE-D5	75	36-125
PHENOL-D5	68	23-125
TERPHENYL-D14	124	42-126

RL: Reporting Limit

(1): Cannot be separated from 3-Methylphenol

(2): Cannot be separated from Diphenylamine



SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 08/19/04
Project : MFA, SITE 1, CTO 86	Date Received: 08/20/04
Batch No. : 04H160	Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-041	Date Analyzed: 09/03/04 22:12
Lab Samp ID: H160-10	Dilution Factor: .94
Lab File ID: RIX081	Matrix : WATER
Ext Btch ID: SVH040W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	77	25-134
2-FLUOROBIPHENYL	71	43-125
2-FLUOROPHENOL	62	25-125
NITROBENZENE-D5	73	25-125
PHENOL-D5	68	25-125
TERPHENYL-D14	107	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 08/19/04
Project : MFA SITE 1, CTO 86	Date Received: 08/20/04
Batch No. : 04H160	Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-042	Date Analyzed: 09/04/04 18:55
Lab Samp ID: H160-11W	Dilution Factor: .94
Lab File ID: RIX097	Matrix: WATER
Ext Btch ID: SVH040W	% Moisture: NA
Calib. Ref.: RIX007	Instrument ID: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	84	25-134
2-FLUOROBIPHENYL	63	43-125
2-FLUOROPHENOL	49	33-125
NITROBENZENE-D5	55	52-125
PHENOL-D5	60	26-125
TERPHENYL-D14	98	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 08/19/04
Project : MFA SITE 1, CTO 86	Date Received: 08/20/04
Batch No. : 04H160	Date Extracted: 08/25/04 16:00
Sample ID: 86-S1-030	Date Analyzed: 09/04/04 19:30
Lab Samp ID: H160-12W	Dilution Factor: .94
Lab File ID: RIX098	Matrix: WATER
Ext Btch ID: SVH040W	% Moisture: NA
Calib. Ref.: RIX007	Instrument ID: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
4-DIMETHYLPHENOL	ND	9.4	4.7
4-DINITROPHENOL	ND	19	9.4
4-DINITROTOLUENE	ND	19	9.4
6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
1-CHLOROPHENOL	ND	9.4	4.7
1-METHYLNAPHTHALENE	ND	9.4	4.7
1-METHYLPHENOL	ND	9.4	4.7
1-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.5
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHthalate	ND	19	9.4
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	71	25-134
2-FLUOROBIPHENYL	52	43-125
2-FLUOROPHENOL	53	25-125
NITROBENZENE-D5	64	36-125
PHENOL-D5	59	36-125
TERPHENYL-D14	92	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04H160

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Twelve (12) water samples were received on 08/20/04 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analysis met the holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within the QC limit.

4. Serial Dilution/Post Analytical Spike

Sample H160-06 was analyzed for serial dilution and post analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample H160-06 was spiked. Recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were analyzed at DF40 due to matrix interference of high chloride level.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : NFA, SITE 1, CTO 86  
Batch No. : 04H160

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGH042WB	ND	1	NA	.2	.1	08/27/04 11:46	08/26/04 12:30	M47H047010	M47H047008	HGH042W	NA	08/26/04
LCS1W	HGH042WL	5.02	1	NA	.2	.1	08/27/04 11:48	08/26/04 12:30	M47H047011	M47H047008	HGH042W	NA	08/26/04
LCD1W	HGH042WC	5.01	1	NA	.2	.1	08/27/04 11:51	08/26/04 12:30	M47H047012	M47H047008	HGH042W	NA	08/26/04
86-S1-031	H160-01	ND	40	NA	8	4	08/27/04 12:04	08/26/04 12:30	M47H047018	M47H047008	HGH042W	08/18/04	08/20/04
86-S1-032	H160-02	ND	40	NA	8	4	08/27/04 12:06	08/26/04 12:30	M47H047019	M47H047008	HGH042W	08/18/04	08/20/04
86-S1-034	H160-03	ND	40	NA	8	4	08/27/04 12:13	08/26/04 12:30	M47H047022	M47H047020	HGH042W	08/18/04	08/20/04
86-S1-035	H160-04	ND	40	NA	8	4	08/27/04 12:15	08/26/04 12:30	M47H047023	M47H047020	HGH042W	08/18/04	08/20/04
86-S1-036	H160-05	ND	40	NA	8	4	08/27/04 12:17	08/26/04 12:30	M47H047024	M47H047020	HGH042W	08/18/04	08/20/04
86-S1-038	H160-07	ND	40	NA	8	4	08/27/04 12:19	08/26/04 12:30	M47H047025	M47H047020	HGH042W	08/19/04	08/20/04
86-S1-039	H160-08	ND	40	NA	8	4	08/27/04 12:22	08/26/04 12:30	M47H047026	M47H047020	HGH042W	08/19/04	08/20/04
86-S1-040	H160-09	ND	40	NA	8	4	08/27/04 12:24	08/26/04 12:30	M47H047027	M47H047020	HGH042W	08/19/04	08/20/04
86-S1-041	H160-10	ND	40	NA	8	4	08/27/04 12:26	08/26/04 12:30	M47H047028	M47H047020	HGH042W	08/19/04	08/20/04
86-S1-042	H160-11	ND	40	NA	8	4	08/27/04 12:28	08/26/04 12:30	M47H047029	M47H047020	HGH042W	08/19/04	08/20/04
86-S1-030	H160-12	ND	40	NA	8	4	08/27/04 12:30	08/26/04 12:30	M47H047030	M47H047020	HGH042W	08/19/04	08/20/04
MBLK2W	HGI006WB	ND	1	NA	.2	.1	09/03/04 18:00	09/03/04 11:00	M471008010	M471008008	HGI006W	NA	09/03/04
LCS2W	HGI006WL	5.01	1	NA	.2	.1	09/03/04 18:02	09/03/04 11:00	M471008011	M471008008	HGI006W	NA	09/03/04
LCD2W	HGI006WC	5.08	1	NA	.2	.1	09/03/04 18:04	09/03/04 11:00	M471008012	M471008008	HGI006W	NA	09/03/04
86-S1-037AS	H160-06A	70.4	40	NA	8	4	09/03/04 18:28	09/03/04 11:00	M471008022	M471008020	HGI006W	08/19/04	08/20/04
86-S1-037	H160-06	ND	40	NA	8	4	09/03/04 18:30	09/03/04 11:00	M471008023	M471008020	HGI006W	08/19/04	08/20/04
86-S1-037BL	H160-06T	ND	200	NA	40	20	09/03/04 18:32	09/03/04 11:00	M471008024	M471008020	HGI006W	08/19/04	08/20/04
86-S1-037NS	H160-06M	43.6	40	NA	8	4	09/03/04 18:34	09/03/04 11:00	M471008025	M471008020	HGI006W	08/19/04	08/20/04
86-S1-037NSD	H160-06S	44	40	NA	8	4	09/03/04 18:37	09/03/04 11:00	M471008026	M471008020	HGI006W	08/19/04	08/20/04

RL: Reporting Limit

7002

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** August 18 through August 19, 2004  
**LDC Report Date:** September 30, 2004  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

ORIGINAL

**Sample Delivery Group (SDG):** 04H160

**Sample Identification**

86-S1-031  
86-S1-032  
86-S1-034  
86-S1-035  
86-S1-036\*\*  
86-S1-037  
86-S1-038  
86-S1-039\*\*  
86-S1-040  
86-S1-041\*\*  
86-S1-042  
86-S1-030  
86-S1-037MS  
86-S1-037MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/3/04	Di-n-octylphthalate	22.2	86-S1-038 86-S1-039** 86-S1-040 86-S1-041**	J (all detects) UJ (all non-detects)	P
9/4/04	Di-n-octylphthalate	25.6	86-S1-042 86-S1-030	J (all detects) UJ (all non-detects)	P



Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/1/04	N-Nitrosodiphenylamine	22.0	All samples in SDG 04H160	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-037MS/MSD (86-S1-037)	4-Nitrophenol	-	-	34 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	A

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

#### X. Internal Standards

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

Samples 86-S1-035 and 86-S1-036\*\* and samples 86-S1-038 and 86-S1-039\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-S1-038	86-S1-039**	
Bis(2-ethylhexyl)phthalate	19U	750	Not calculable

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 04H160**

SDG	Sample	Compound	Flag	A or P	Reason
04H160	86-S1-038 86-S1-039** 86-S1-040 86-S1-041** 86-S1-042 86-S1-030	Di-n-octylphthalate	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
04H160	86-S1-031 86-S1-032 86-S1-034 86-S1-035 86-S1-036** 86-S1-037 86-S1-038 86-S1-039** 86-S1-040 86-S1-041** 86-S1-042 86-S1-030	N-Nitrosodiphenylamine	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
04H160	86-S1-037	4-Nitrophenol	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)

**Moffett Airfield, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04H160**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, CTO 86  
**Collection Date:** August 18 through August 19, 2004  
**LDC Report Date:** September 30, 2004  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

ORIGINAL

**Sample Delivery Group (SDG):** 04H160

**Sample Identification**

86-S1-031  
86-S1-032  
86-S1-034  
86-S1-035  
86-S1-036\*\*  
86-S1-037  
86-S1-038  
86-S1-039\*\*  
86-S1-040  
86-S1-041\*\*  
86-S1-042  
86-S1-030  
86-S1-037MS  
86-S1-037MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample was not required by the method.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

Samples 86-S1-035 and 86-S1-036\*\* and samples 86-S1-038 and 86-S1-039\*\* were identified as field duplicates. No dissolved mercury was detected in any of the samples.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 04H160**

No Sample Data Qualified in this SDG

**Moffett Airfield, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 04H160**

No Sample Data Qualified in this SDG



**SEPTEMBER 2004**

**CHAIN-OF-CUSTODY RECORD**

PROJECT NAME <b>CTO 86- Site 1 - R4/04</b>		PURCHASE ORDER NO. <b>20848 Task 28</b>		<b>ANALYSES REQUIRED</b> <div style="display: flex; justify-content: space-around;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 8200C - EXT. LIS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 7470A - D. Merc.</div> </div>										LABORATORY NAME <b>EMAX</b>		<b>Project Information Section</b> <b>Do not submit to Laboratory</b>									
PROJECT LOCATION <b>Morfeet</b>		PROJECT NO. <b>190-0860</b>												LABORATORY ID (FOR LABORATORY) <b>04I157</b>											
SAMPLER NAME <b>D. Harrison</b>		SAMPLER SIGNATURE <i>[Signature]</i>																							
PROJECT CONTACT <b>Lynn Jefferson</b>		AIRBILL NUMBER <b>845907613080</b>																							
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		TYPE	T	A	T											COMMENTS	LOCATION	DEPTH		QC	
				3	4																	START	END		
86-SI-043	9/27/04	1105	3		X	W	10	day	X	X											W1-1R			Reg	
86-SI-044	9/27/04	1155	3		X	W	10	day	X	X											W1-15			Reg	
86-SI-045	9/27/04	1300	3		X	W	10	day	X	X											W1-19			Reg	
86-SI-047	9/27/04	1355	9		X	W	10	day	X	X									RUN MS/MSD		W1-14			Reg	
86-SI-048	9/28/04	0820	3		X	W	10	day	X	X											W1-12R			Reg	
86-SI-049	9/28/04	0825	3		X	W	10	day	X	X											W1-12R			FD	
86-SI-050	9/28/04	0930	3		X	W	10	day	X	X											W1-22			Reg	
86-SI-051	9/28/04	1030	3		X	W	10	day	X	X											W1-5			Reg	
<div style="position: absolute; bottom: 10px; right: 10px; font-size: 2em; opacity: 0.5;"> <i>[Handwritten signature]</i> </div>																									
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE <b>9/28/04</b>		RECEIVED BY (Signature) <b>FEDEX</b>		LABORATORY INSTRUCTIONS/COMMENTS <b>D. Merc. was field filtered</b>														<b>SAMPLING COMMENT:</b> <b>Site 1</b> <b>R4/04</b> <b>Baseline</b>					
COMPANY <b>FEDEX</b>		TIME <b>1300</b>		COMPANY																					
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		COMPOSITE DESCRIPTION																			
COMPANY		TIME		COMPANY																					
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																			
COMPANY		TIME		COMPANY																					

**EMAX**  
**LABORATORIES, INC.**  
1835 W. 205th Street  
Torrance, CA 90501  
Tel: (310) 618-8889  
Fax: (310) 618-0818

Date: 10-13-2004  
EMAX Batch No.: 041157

Attn: Lynn Jefferson

Tetra Tech FW, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86

-----  
Enclosed is the Laboratory report for samples received on  
09/29/04. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-043	I157-01	09/27/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-044	I157-02	09/27/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-045	I157-03	09/27/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-047	I157-04	09/27/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-048	I157-05	09/28/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-049	I157-06	09/28/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-050	I157-07	09/28/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-051	I157-08	09/28/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-047MS	I157-04M	09/27/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-047MSD	I157-04S	09/27/04	WATER	MERCURY DISSOLVED

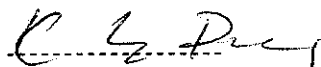
Sample ID      Control #   Col Date   Matrix   Analysis  
-----

SEMIVOLATILE ORGANICS BY GCMS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.  
Laboratory Director

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04/157

**SW 3520C/8270C**  
**SEMI VOLATILE ORGANICS BY GC/MS**

Eight (8) water samples were received on 09/29/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time  
Analytical holding time was met.
2. Tuning and Calibration  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. Method Blank  
Method blanks were free of contamination at the reporting limit.
4. Surrogate Recovery  
Recoveries were within QC limit.
5. Lab Control Sample/Lab Control Sample Duplicate  
Recoveries were within QC limit. RPD of two analytes were above QC limit.
6. Matrix Spike/Matrix Spike Duplicate  
Sample I157-04 was spiked. All recoveries were within QC limit.
7. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 09/27/04
Project : MFA SITE 1, CTO 86	Date Received: 09/29/04
Batch No. : 041157	Date Extracted: 09/30/04 13:00
Sample ID: 86-S1-043	Date Analyzed: 10/04/04 17:23
Lab Samp ID: I157-01	Dilution Factor: 1.01
Lab File ID: RJX009	Matrix : WATER
Ext Btch ID: SVI034W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	10	5
2,4,6-TRICHLOROPHENOL	ND	10	5
2,4-DICHLOROPHENOL	ND	10	5
2,4-DIMETHYLPHENOL	ND	10	5
2,4-DINITROPHENOL	ND	20	10
2,4-DINITROTOLUENE	ND	20	10
2,6-DINITROTOLUENE	ND	20	6.1
2-CHLORONAPHTHALENE	ND	10	5
2-CHLOROPHENOL	ND	10	5
2-METHYLNAPHTHALENE	ND	10	5
2-METHYLPHENOL	ND	10	5
2-NITROANILINE	ND	20	6.1
2-NITROPHENOL	ND	10	5
3,3'-DICHLOROBENZIDINE	ND	10	5
3-NITROANILINE	ND	10	5
4,6-DINITRO-2-METHYLPHENOL	ND	20	10
4-BROMOPHENYL-PHENYL ETHER	ND	20	7.1
4-CHLORO-3-METHYLPHENOL	ND	10	5
4-CHLOROANILINE	ND	10	5
4-CHLOROPHENYL-PHENYL ETHER	ND	10	5
4-METHYLPHENOL (1)	ND	10	5
4-NITROANILINE	ND	10	5
4-NITROPHENOL	ND	20	5
ACENAPHTHENE	ND	10	5
ACENAPHTHYLENE	ND	10	5
ANTHRACENE	ND	10	5
BENZO(A)ANTHRACENE	ND	10	5
BENZO(A)PYRENE	ND	10	5
BENZO(B)FLUORANTHENE	ND	10	5
BENZO(K)FLUORANTHENE	ND	10	5
BENZO(G,H,I)PERYLENE	ND	10	5
BIS(2-CHLOROETHOXY)METHANE	ND	10	5
BIS(2-CHLOROETHYL)ETHER	ND	10	5
BIS(2-CHLOROISOPROPYL)ETHER	ND	10	5
BIS(2-ETHYLHEXYL)PHTHALATE	ND	20	10
BUTYLBENZYLPHTHALATE	ND	10	5
CHRYSENE	ND	10	5
D1-N-BUTYLPHTHALATE	ND	10	5
D1-N-OCTYLPHTHALATE	ND	10	5
DIBENZO(A,H)ANTHRACENE	ND	10	5
DIBENZOFURAN	ND	10	5
DIETHYLPHTHALATE	ND	20	6.1
DIMETHYLPHTHALATE	ND	20	5
FLUORANTHENE	ND	10	5
FLUORENE	ND	10	5
HEXACHLOROBENZENE	ND	20	6.1
HEXACHLOROCYCLOPENTADIENE	ND	10	5
HEXACHLOROETHANE	ND	10	5
INDENO(1,2,3-CD)PYRENE	ND	10	5
ISOPHORONE	ND	10	5
N-NITROSO-DI-N-PROPYLAMINE	ND	10	5
N-NITROSDIPHENYLAMINE (2)	ND	10	5
NITROBENZENE	ND	10	5
PENTACHLOROPHENOL	ND	20	10
PHENANTHRENE	ND	20	6.1
PHENOL	ND	10	5
PYRENE	ND	10	5
1,1'-BIPHENYL	ND	10	5
ACETOPHENONE	ND	10	2.1
ATRAZINE	ND	20	10
BENZALDEHYDE	ND	10	5
CAPROLACTAM	ND	10	5
CARBAZOLE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	85	25-134
2-FLUOROBIPHENYL	57	43-125
2-FLUOROPHENOL	47	25-125
NITROBENZENE-D5	55	32-125
PHENOL-D5	51	25-125
TERPHENYL-D14	100	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 09/27/04  
Project : MFA SITE 1, CTO 86 Date Received: 09/29/04  
Batch No. : 041157 Date Extracted: 09/30/04 13:00  
Sample ID: 86-S1-044 Date Analyzed: 10/04/04 17:58  
Lab Samp ID: 1157-02 Dilution Factor: .96  
Lab File ID: RJX010 Matrix : WATER  
Ext Btch ID: SV1034W % Moisture : NA  
Calib. Ref.: RIX007 Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.6	4.8
2,4,6-TRICHLOROPHENOL	ND	9.6	4.8
2,4-DICHLOROPHENOL	ND	9.6	4.8
2,4-DIMETHYLPHENOL	ND	9.6	4.8
2,4-DINITROPHENOL	ND	19	9.6
2,4-DINITROTOLUENE	ND	19	9.6
2,6-DINITROTOLUENE	ND	19	5.8
2-CHLORONAPHTHALENE	ND	9.6	4.8
2-CHLOROPHENOL	ND	9.6	4.8
2-METHYLNAPHTHALENE	ND	9.6	4.8
2-METHYLPHENOL	ND	19	4.8
2-NITROANILINE	ND	9.6	5.8
2-NITROPHENOL	ND	9.6	4.8
3,3'-DICHLOROBENZIDINE	ND	9.6	4.8
3-NITROANILINE	ND	9.6	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.6
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.7
4-CHLORO-3-METHYLPHENOL	ND	9.6	4.8
4-CHLOROANILINE	ND	9.6	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.6	4.8
4-METHYLPHENOL (1)	ND	9.6	4.8
4-NITROANILINE	ND	9.6	4.8
4-NITROPHENOL	ND	19	4.8
ACENAPHTHENE	ND	9.6	4.8
ACENAPHTHYLENE	ND	9.6	4.8
ANTHRACENE	ND	9.6	4.8
BENZO(A)ANTHRACENE	ND	9.6	4.8
BENZO(A)PYRENE	ND	9.6	4.8
BENZO(B)FLUORANTHENE	ND	9.6	4.8
BENZO(K)FLUORANTHENE	ND	9.6	4.8
BENZO(G,H,I)PERYLENE	ND	9.6	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.6	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.6	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.6	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.6
BUTYLBENZYLPHTHALATE	ND	9.6	4.8
CHRYSENE	ND	9.6	4.8
DI-N-BUTYLPHTHALATE	ND	9.6	4.8
DI-N-OCTYLPHTHALATE	ND	9.6	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.6	4.8
DIBENZOFURAN	ND	9.6	4.8
DIETHYLPHTHALATE	ND	19	4.8
DIMETHYLPHTHALATE	ND	19	4.8
FLUORANTHENE	ND	9.6	4.8
FLUORENE	ND	19	5.8
HEXACHLOROBENZENE	ND	9.6	4.8
HEXACHLOROCYCLOPENTADIENE	ND	9.6	4.8
HEXACHLOROETHANE	ND	9.6	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.6	4.8
ISOPHORONE	ND	9.6	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.6	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.6	4.8
NITROBENZENE	ND	9.6	4.8
PENTACHLOROPHENOL	ND	19	9.6
PHENANTHRENE	ND	19	5.8
PHENOL	ND	9.6	4.8
PYRENE	ND	9.6	4.8
1,1'-BIPHENYL	ND	9.6	4.8
ACETOPHENONE	ND	9.6	4.8
ATRAZINE	ND	19	9.6
BENZALDEHYDE	ND	9.6	4.8
CAPROLACTAM	ND	9.6	4.8
CARBAZOLE	ND	9.6	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	74	25-134
2-FLUOROBIPHENYL	66	43-125
2-FLUOROPHENOL	58	25-125
NITROBENZENE-D5	67	32-125
PHENOL-D5	61	25-125
TERPHENYL-D14	82	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 09/27/04  
Project : MFA, SITE 1, CTO 86 Date Received: 09/29/04  
Batch No. : 041157 Date Extracted: 09/30/04 13:00  
Sample ID: 86-S1-045 Date Analyzed: 10/04/04 18:33  
Lab Samp ID: 1157-03 Dilution Factor: 1  
Lab File ID: RJX011 Matrix: WATER  
Ext Btch ID: SV1034W % Moisture: NA  
Calib. Ref.: R1X007 Instrument ID: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	10	5
2,4,6-TRICHLOROPHENOL	ND	10	5
2,4-DICHLOROPHENOL	ND	10	5
2,4-DIMETHYLPHENOL	ND	10	5
2,4-DINITROPHENOL	ND	20	10
2,4-DINITROTOLUENE	ND	20	10
2,6-DINITROTOLUENE	ND	20	5
2-CHLORONAPHTHALENE	ND	10	5
2-CHLOROPHENOL	ND	10	5
2-METHYLNAPHTHALENE	ND	10	5
2-METHYLPHENOL	ND	20	5
2-NITROANILINE	ND	10	5
2-NITROPHENOL	ND	10	5
3,1-DICHLOROBENZIDINE	ND	10	5
3-NITROANILINE	ND	10	5
4,6-DINITRO-2-METHYLPHENOL	ND	20	10
4-BROMOPHENYL-PHENYL ETHER	ND	20	5
4-CHLORO-3-METHYLPHENOL	ND	10	5
4-CHLOROANILINE	ND	10	5
4-CHLOROPHENYL-PHENYL ETHER	ND	10	5
4-METHYLPHENOL (1)	ND	10	5
4-NITROANILINE	ND	10	5
4-NITROPHENOL	ND	20	5
ACENAPHTHENE	ND	10	5
ACENAPHTHYLENE	ND	10	5
ANTHRACENE	ND	10	5
BENZO(A)ANTHRACENE	ND	10	5
BENZO(A)PYRENE	ND	10	5
BENZO(B)FLUORANTHENE	ND	10	5
BENZO(K)FLUORANTHENE	ND	10	5
BENZO(G,H,I)PERYLENE	ND	10	5
BIS(2-CHLOROETHOXY)METHANE	ND	10	5
BIS(2-CHLOROETHYL)ETHER	ND	10	5
BIS(2-CHLOROISOPROPYL)ETHER	ND	10	5
BIS(2-ETHYLHEXYL)PHTHALATE	ND	20	10
BUTYLBENZYLPHTHALATE	ND	10	5
CHRYSENE	ND	10	5
DI-N-BUTYLPHTHALATE	ND	10	5
DI-N-OCTYLPHTHALATE	ND	10	5
DIBENZO(A,H)ANTHRACENE	ND	10	5
DIBENZOFURAN	ND	20	5
DIETHYLPHTHALATE	ND	20	5
DIMETHYLPHTHALATE	ND	10	5
FLUORANTHENE	ND	10	5
FLUORENE	ND	10	5
HEXACHLORO BENZENE	ND	20	5
HEXACHLOROCYCLOPENTADIENE	ND	10	5
HEXACHLOROETHANE	ND	10	5
INDENO(1,2,3-CD)PYRENE	ND	10	5
ISOPHORONE	ND	10	5
N-NITROSO-DI-N-PROPYLAMINE	ND	10	5
N-NITROSODIPHENYLAMINE (2)	ND	10	5
NITROBENZENE	ND	10	5
PENTACHLOROPHENOL	ND	20	10
PHENANTHRENE	ND	20	5
PHENOL	ND	10	5
PYRENE	ND	10	5
1,1-BIPHENYL	ND	10	2
ACETOPHENONE	ND	20	10
ATRAZINE	ND	10	5
BENZALDEHYDE	ND	10	5
CAPROLACTAM	ND	10	5
CARBAZOLE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	83	25-134
2-FLUOROBIPHENYL	71	43-125
2-FLUOROPHENOL	65	25-125
NITROBENZENE-D5	75	32-125
PHENOL-D5	67	25-125
TERPHENYL-D14	91	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine



SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 09/27/04
Project : MFA SITE 1, CTO 86	Date Received: 09/29/04
Batch No. : 041157	Date Extracted: 09/30/04 13:00
Sample ID: 86-S1-047	Date Analyzed: 10/04/04 19:09
Lab Samp ID: I157-04	Dilution Factor: 1
Lab File ID: RJX012	Matrix : WATER
Ext Btch ID: SVI034W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	10	5
2,4,6-TRICHLOROPHENOL	ND	10	5
2,4-DICHLOROPHENOL	ND	10	5
2,4-DIMETHYLPHENOL	ND	10	5
2,4-DINITROPHENOL	ND	20	10
2,4-DINITROTOLUENE	ND	20	10
2,6-DINITROTOLUENE	ND	20	10
2-CHLORONAPHTHALENE	ND	10	5
2-CHLOROPHENOL	ND	10	5
2-METHYLNAPHTHALENE	ND	10	5
2-METHYLPHENOL	ND	10	5
2-NITROANILINE	ND	20	10
2-NITROPHENOL	ND	10	5
3,3'-DICHLOROBENZIDINE	ND	10	5
3-NITROANILINE	ND	10	5
4,6-DINITRO-2-METHYLPHENOL	ND	20	10
4-BROMOPHENYL-PHENYL ETHER	ND	10	5
4-CHLORO-3-METHYLPHENOL	ND	10	5
4-CHLOROANILINE	ND	10	5
4-CHLOROPHENYL-PHENYL ETHER	ND	10	5
4-METHYLPHENOL (1)	ND	10	5
4-NITROANILINE	ND	10	5
4-NITROPHENOL	ND	20	10
ACENAPHTHENE	ND	10	5
ACENAPHTHYLENE	ND	10	5
ANTHRACENE	ND	10	5
BENZO(A)ANTHRACENE	ND	10	5
BENZO(A)PYRENE	ND	10	5
BENZO(B)FLUORANTHENE	ND	10	5
BENZO(K)FLUORANTHENE	ND	10	5
BENZO(G,H,I)PERYLENE	ND	10	5
BIS(2-CHLOROETHOXY)METHANE	ND	10	5
BIS(2-CHLOROETHYL)ETHER	ND	10	5
BIS(2-CHLOROISOPROPYL)ETHER	ND	10	5
BIS(2-ETHYLHEXYL)PHTHALATE	ND	20	10
BUTYLBENZYLPHthalate	ND	10	5
CHRYSENE	ND	10	5
D1-N-BUTYLPHthalate	ND	10	5
D1-N-OCTYLPHthalate	ND	10	5
DIBENZO(A,H)ANTHRACENE	ND	10	5
DIBENZOFURAN	ND	10	5
DIETHYLPHthalate	ND	20	10
DIMETHYLPHthalate	ND	20	10
FLUORANTHENE	ND	10	5
FLUORENE	ND	10	5
HEXACHLOROBENZENE	ND	20	10
HEXACHLOROCYCLOPENTADIENE	ND	10	5
HEXACHLOROETHANE	ND	10	5
INDENO(1,2,3-CD)PYRENE	ND	10	5
ISOPHORONE	ND	10	5
N-NITROSO-D1-N-PROPYLAMINE	ND	10	5
N-NITROSODIPHENYLAMINE (2)	ND	10	5
NITROBENZENE	ND	10	5
PENTACHLOROPHENOL	ND	20	10
PHENANTHRENE	ND	20	10
PHENOL	ND	10	5
PYRENE	ND	10	5
1,1'-BIPHENYL	ND	10	5
ACETOPHENONE	ND	10	5
ATRAZINE	ND	20	10
BENZALDEHYDE	ND	10	5
CAPROLACTAM	ND	10	5
CARBAZOLE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	78	25-134
2-FLUOROBIPHENYL	48	43-125
2-FLUOROPHENOL	38	25-125
NITROBENZENE-D5	43	32-125
PHENOL-D5	44	25-125
TERPHENYL-D14	87	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 09/28/04
Project : MFA SITE 1, CTO 86	Date Received: 09/29/04
Batch No. : 041157	Date Extracted: 09/30/04 13:00
Sample ID: 86-S1-048	Date Analyzed: 10/04/04 20:54
Lab Samp ID: 1157-05	Dilution Factor: .95
Lab File ID: RJX015	Matrix : WATER
Ext Btch ID: SVI034W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	19	9.5
2,4-DINITROTOLUENE	ND	19	9.5
2,6-DINITROTOLUENE	ND	19	5.7
2-CHLORONAPHTHALENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	9.5	4.8
2-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	19	5.7
2-NITROPHENOL	ND	9.5	4.8
3,3'-DICHLOROBENZIDINE	ND	9.5	4.8
3-NITROANILINE	ND	19	9.5
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	9.5	4.8
4-NITROPHENOL	ND	19	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.5
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.5	4.8
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DI-N-BUTYLPHTHALATE	ND	9.5	4.8
DI-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	9.5	4.8
DIETHYLPHTHALATE	ND	19	5.7
DIMETHYLPHTHALATE	ND	9.5	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	19	5.7
HEXACHLOROBENZENE	ND	9.5	4.8
HEXACHLOROCYCLOPENTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSDIPHENYLAMINE (2)	ND	9.5	4.8
NITROBENZENE	ND	9.5	4.8
PENTACHLOROPHENOL	ND	19	9.5
PHENANTHRENE	ND	19	5.7
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
1,1'-BIPHENYL	ND	9.5	4.8
ACETOPHENONE	ND	9.5	4.8
ATRAZINE	ND	19	4.8
BENZALDEHYDE	ND	9.5	4.8
CAPROLACTAM	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	68	25-134
2-FLUOROBIPHENYL	58	43-125
2-FLUOROPHENOL	49	25-125
NITROBENZENE-D5	58	32-125
PHENOL-D5	51	25-125
TERPHENYL-D14	80	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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Client   : TETRA TECH FW, INC.      Date Collected: 09/28/04
Project  : MFA SITE 1, CTO 86      Date Received: 09/29/04
Batch No.: 041157                 Date Extracted: 10/05/04 17:00
Sample ID: 86-S1-049              Date Analyzed: 10/08/04 16:05
Lab Samp ID: I157-06R             Dilution Factor: .94
Lab File ID: RJX090               Matrix : WATER
Ext Btch ID: SVJ004W              % Moisture : NA
Calib. Ref.: RIX007               Instrument ID : T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	67	25-134
2-FLUOROBIPHENYL	63	43-125
2-FLUOROPHENOL	56	25-125
NITROBENZENE-D5	69	32-125
PHENOL-D5	61	25-125
TERPHENYL-D14	88	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 09/28/04
Project : MFA, SITE 1, CTO 86	Date Received: 09/29/04
Batch No. : 041157	Date Extracted: 09/30/04 13:00
Sample ID: 86-S1-050	Date Analyzed: 10/04/04 22:04
Lab Samp ID: I157-07	Dilution Factor: .95
Lab File ID: RJX017	Matrix : WATER
Ext Btch ID: SVI034W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	0.5	4.8
2,4,6-TRICHLOROPHENOL	ND	0.5	4.8
2,4-DICHLOROPHENOL	ND	0.5	4.8
2,4-DIMETHYLPHENOL	ND	0.5	4.8
2,4-DINITROPHENOL	ND	1.0	9.5
2,4-DINITROTOLUENE	ND	1.0	9.5
2,6-DINITROTOLUENE	ND	1.0	5.7
2-CHLORONAPHTHALENE	ND	0.5	4.8
2-CHLOROPHENOL	ND	0.5	4.8
2-METHYLNAPHTHALENE	ND	0.5	4.8
2-METHYLPHENOL	ND	0.5	4.8
2-NITROANILINE	ND	1.0	5.7
2-NITROPHENOL	ND	0.5	4.8
3,3'-DICHLOROBENZIDINE	ND	0.5	4.8
3-NITROANILINE	ND	1.0	9.5
4,6-DINITRO-2-METHYLPHENOL	ND	1.0	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	0.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	0.5	4.8
4-CHLOROANILINE	ND	0.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	0.5	4.8
4-METHYLPHENOL (1)	ND	0.5	4.8
4-NITROANILINE	ND	0.5	4.8
4-NITROPHENOL	ND	1.0	4.8
ACENAPHTHENE	ND	0.5	4.8
ACENAPHTHYLENE	ND	0.5	4.8
ANTHRACENE	ND	0.5	4.8
BENZO(A)ANTHRACENE	ND	0.5	4.8
BENZO(A)PYRENE	ND	0.5	4.8
BENZO(B)FLUORANTHENE	ND	0.5	4.8
BENZO(K)FLUORANTHENE	ND	0.5	4.8
BENZO(G,H,I)PERYLENE	ND	0.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	0.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	0.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	1.0	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	0.5	4.8
BUTYLBENZYLPHthalate	ND	0.5	4.8
CHRYSENE	ND	0.5	4.8
DI-N-BUTYLPHthalate	ND	0.5	4.8
DI-N-OCTYLPHthalate	ND	0.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	0.5	4.8
DIBENZOFURAN	ND	0.5	4.8
DIETHYLPHthalate	ND	1.0	5.7
DIMETHYLPHthalate	ND	1.0	4.8
FLUORANTHENE	ND	0.5	4.8
FLUORENE	ND	1.0	6.6
HEXACHLOROBENZENE	ND	0.5	2.8
HEXACHLOROCYCLOPENTADIENE	ND	0.5	4.8
HEXACHLOROETHANE	ND	0.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	0.5	4.8
ISOPHORONE	ND	0.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	0.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	0.5	4.8
NITROBENZENE	ND	0.5	4.8
PENTACHLOROPHENOL	ND	1.0	9.5
PHENANTHRENE	ND	1.0	5.7
PHENOL	ND	0.5	4.8
PYRENE	ND	0.5	4.8
1,1'-BIPHENYL	ND	0.5	4.8
ACETOPHENONE	ND	1.0	6.6
ATRAZINE	ND	0.5	4.8
BENZALDEHYDE	ND	0.5	4.8
CAPROLACTAM	ND	0.5	4.8
CARBAZOLE	ND	0.5	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	73	25-134
2-FLUOROBIPHENYL	65	43-125
2-FLUOROPHENOL	56	25-125
NITROBENZENE-D5	66	32-125
PHENOL-D5	61	25-125
TERPHENYL-D14	85	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 09/28/04
Project : MFA, SITE 1, CTO 86	Date Received: 09/29/04
Batch No. : 041157	Date Extracted: 09/30/04 13:00
Sample ID: 86-S1-051	Date Analyzed: 10/04/04 22:39
Lab Samp ID: I157-08	Dilution Factor: .95
Lab File ID: RJX018	Matrix : WATER
Ext Btch ID: SVI034W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	1.0	9.5
2,4-DINITROTOLUENE	ND	1.0	9.5
2,6-DINITROTOLUENE	ND	1.0	9.5
2-CHLORONAPHTHALENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	9.5	4.8
2-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	9.5	4.8
2-NITROPHENOL	ND	9.5	4.8
3,5-DICHLOROBENZIDINE	ND	9.5	4.8
3-NITROANILINE	ND	9.5	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	1.0	9.5
4-BROMOPHENYL-PHENYL ETHER	ND	1.0	9.5
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	9.5	4.8
4-NITROPHENOL	ND	9.5	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.5	4.8
BIS(2-ETHYLHEXYL)PHthalate	ND	9.5	4.8
BUTYLBENZYLPHthalate	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DI-N-BUTYLPHthalate	ND	9.5	4.8
DI-N-OCTYLPHthalate	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	9.5	4.8
DIETHYLPHthalate	ND	9.5	4.8
DIMETHYLPHthalate	ND	9.5	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	9.5	4.8
HEXACHLOROBENZENE	ND	9.5	4.8
HEXACHLOROCYCLOPENTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.5	4.8
NITROBENZENE	ND	9.5	4.8
PENTACHLOROPHENOL	ND	9.5	4.8
PHENANTHRENE	ND	9.5	4.8
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
1,1'-BIPHENYL	ND	9.5	4.8
ACETOPHENONE	ND	9.5	4.8
ATRAZINE	ND	9.5	4.8
BENZALDEHYDE	ND	9.5	4.8
CAPROLACTAM	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	72	25-134
2-FLUOROBIPHENYL	63	43-125
2-FLUOROPHENOL	55	25-125
NITROBENZENE-D5	67	32-125
PHENOL-D5	57	25-125
TERPHENYL-D14	80	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04I157

**SW7470A**  
**DISSOLVED MERCURY BY COLD VAPOR**

Eight (8) water samples were received on 09/29/04 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analysis met the holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within the QC limit.

4. Serial Dilution/Post Analytical Spike

Sample I157-04 was analyzed for serial dilution and post analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample I157-04 was spiked. %Recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met. Samples were diluted 20 times due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 041157

Matrix : WATER  
Instrument ID : 11047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFD	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGI0594B	ND	1	NA	.2	.1	10/01/0414:24	09/30/0416:00	M47J002010	M47J002008	HGI0594	NA	09/30/04
LCST1W	HGI0594L	5.04	1	NA	.2	.1	10/01/0414:26	09/30/0416:00	M47J002011	M47J002008	HGI0594	NA	09/30/04
LCD1W	HGI0594C	5.1	1	NA	.2	.1	10/01/0414:29	09/30/0416:00	M47J002012	M47J002008	HGI0594	NA	09/30/04
86-S1-047AS	1157-04A	35.2	20	NA	4	2	10/01/0414:31	09/30/0416:00	M47J002013	M47J002008	HGI0594	09/27/04	09/29/04
86-S1-047	1157-04	ND	20	NA	4	2	10/01/0414:33	09/30/0416:00	M47J002014	M47J002008	HGI0594	09/27/04	09/29/04
86-S1-047DL	1157-04T	ND	100	NA	20	10	10/01/0414:35	09/30/0416:00	M47J002015	M47J002008	HGI0594	09/27/04	09/29/04
86-S1-047MS	1157-04M	7.78	20	NA	4	2	10/01/0414:37	09/30/0416:00	M47J002016	M47J002008	HGI0594	09/27/04	09/29/04
86-S1-047MSD	1157-04S	7.46	20	NA	4	2	10/01/0414:39	09/30/0416:00	M47J002017	M47J002008	HGI0594	09/27/04	09/29/04
86-S1-043	1157-01	ND	20	NA	4	2	10/01/0414:42	09/30/0416:00	M47J002018	M47J002008	HGI0594	09/27/04	09/29/04
86-S1-044	1157-02	ND	20	NA	4	2	10/01/0414:44	09/30/0416:00	M47J002019	M47J002008	HGI0594	09/27/04	09/29/04
86-S1-045	1157-03	ND	20	NA	4	2	10/01/0414:50	09/30/0416:00	M47J002022	M47J002020	HGI0594	09/27/04	09/29/04
86-S1-048	1157-05	ND	20	NA	4	2	10/01/0414:53	09/30/0416:00	M47J002023	M47J002020	HGI0594	09/28/04	09/29/04
86-S1-049	1157-06	ND	20	NA	4	2	10/01/0414:55	09/30/0416:00	M47J002024	M47J002020	HGI0594	09/28/04	09/29/04
86-S1-050	1157-07	ND	20	NA	4	2	10/01/0414:57	09/30/0416:00	M47J002025	M47J002020	HGI0594	09/28/04	09/29/04
86-S1-051	1157-08	ND	20	NA	4	2	10/01/0415:00	09/30/0416:00	M47J002026	M47J002020	HGI0594	09/28/04	09/29/04

RL: Reporting Limit

7004

**ORIGINAL**

**LDC Report# 12637A2**

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** September 27 through September 28, 2004  
**LDC Report Date:** October 21, 2004  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 041157

**Sample Identification**

86-S1-043\*\*  
86-S1-044  
86-S1-045  
86-S1-047  
86-S1-048  
86-S1-049\*\*  
86-S1-050  
86-S1-051  
86-S1-047MS  
86-S1-047MSD

**\*\*Indicates sample underwent EPA Level IV review**



## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/8/04	2,4-Dinitrophenol	35.0	86-S1-049** MBLK2W	J (all detects) UJ (all non-detects)	A

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/1/04	N-Nitrosodiphenylamine	22.1	All samples in SDG 041157	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D1W (86-S1-043** 86-S1-044 86-S1-045 86-S1-047 86-S1-048 86-S1-050 86-S1-051 MBLK1W)	4-Nitrophenol	-	-	51 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	P
	Phenol	-	-	54 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

Samples 86-S1-048 and 86-S1-049\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 04I157**

SDG	Sample	Compound	Flag	A or P	Reason
04I157	86-S1-049**	2,4-Dinitrophenol	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
04I157	86-S1-043** 86-S1-044 86-S1-045 86-S1-047 86-S1-048 86-S1-049** 86-S1-050 86-S1-051	N-Nitrosodiphenylamine	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
04I157	86-S1-043** 86-S1-044 86-S1-045 86-S1-047 86-S1-048 86-S1-050 86-S1-051	4-Nitrophenol  Phenol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Laboratory control samples (RPD)

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04I157**

No Sample Data Qualified in this SDG

# ORIGINAL

LDC Report# 12637A4

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** September 28, 2004

**LDC Report Date:** October 28, 2004

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 041157

### Sample Identification

86-S1-043\*\*

86-S1-044

86-S1-045

86-S1-047

86-S1-048

86-S1-049\*\*

86-S1-050

86-S1-051

86-S1-047MS

86-S1-047MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample was not required by the method.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.



## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

Samples 86-S1-048 and 86-S1-049\*\* were identified as field duplicates. No dissolved mercury was detected in any of the samples.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 04I157**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 04I157**

No Sample Data Qualified in this SDG

**NUMBER**

## CHAIN-OF-CUSTODY RECORD

PROJECT NAME CTD86 - Site 1 - R4/04		PURCHASE ORDER NO. 20848-Task 28		ANALYSES REQUIRED										LABORATORY NAME  EMAX		Project Information Section Do not submit to Laboratory					
PROJECT LOCATION Moffett		PROJECT NO. 199D.086E												LABORATORY ID (FOR LABORATORY) 04I171							
SAMPLER NAME D. Harrison		SAMPLER SIGNATURE 																			
PROJECT CONTACT Lynn Jefferson		AIRBILL NUMBER 8459076/3573												COMMENTS		LOCATION		DEPTH		QC	
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER													LEVEL		TYP E	T A T	START	
86-SI-052	9/28/04	1305	3	X		W	to day	X	X									Reg			
86-SI-053	9/28/04	1315	3		X	W	to day	X	X									F D			
86-SI-054	9/28/04	1405	3	X		W	to day	X	X									Reg			
86-SI-055	9/28/04	1505	3	X		W	to day	X	X									Reg			
RELINQUISHED BY (Signature) 		DATE 9/29/04		RECEIVED BY (Signature) F. Dec V		LABORATORY INSTRUCTIONS/COMMENTS D. Merc. was field filtered													SAMPLING COMMENT: Site 1 R4/04 Baseline		
COMPANY TTRW		TIME 1300		COMPANY		COMPOSITE DESCRIPTION															
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)																	
COMPANY		TIME		COMPANY																	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)															
COMPANY		TIME		COMPANY		TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN															

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0015/50



**LABORATORIES, INC.**

1835 W. 205th Street  
Torrance, CA 90501  
Tel: (310) 618-8889  
Fax: (310) 618-0818

Date: 10-07-2004  
EMAX Batch No.: 041171

Attn: Lynn Jefferson

Tetra Tech FW, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86

-----  
Enclosed is the Laboratory report for samples received on  
09/30/04. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-052	I171-01	09/28/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-053	I171-02	09/28/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-054	I171-03	09/28/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-055	I171-04	09/28/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning  
these results.

Sincerely yours,

Kam Y. Pang, Ph.D.  
Laboratory Director

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 04I171

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Four (4) water samples were received on 09/30/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit. RPDs of two analytes were above QC.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 09/28/04
Project : MFA SITE 1, CTO 86	Date Received: 09/30/04
Batch No. : 041171	Date Extracted: 09/30/04 13:00
Sample ID: 86-S1-052	Date Analyzed: 10/04/04 23:14
Lab Samp ID: I171-01	Dilution Factor: .94
Lab File ID: RJX019	Matrix : WATER
Ext Btch ID: SVI034W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.6
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	6.2
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	84	25-134
2-FLUOROBIPHENYL	78	43-125
2-FLUOROPHENOL	64	25-125
NITROBENZENE-D5	78	32-125
PHENOL-D5	67	25-125
TERPHENYL-D14	93	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 09/28/04
Project : MFA SITE 1, CTO 86	Date Received: 09/30/04
Batch No. : 041171	Date Extracted: 09/30/04 13:00
Sample ID: 86-S1-053	Date Analyzed: 10/04/04 23:49
Lab Samp ID: 1171-02	Dilution Factor: .96
Lab File ID: RJX020	Matrix : WATER
Ext Btch ID: SV1034W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.6	4.8
2,4,6-TRICHLOROPHENOL	ND	9.6	4.8
2,4-DICHLOROPHENOL	ND	9.6	4.8
2,4-DIMETHYLPHENOL	ND	9.6	4.8
2,4-DINITROPHENOL	ND	19	9.6
2,4-DINITROTOLUENE	ND	19	9.6
2,6-DINITROTOLUENE	ND	19	5.8
2-CHLORONAPHTHALENE	ND	9.6	4.8
2-CHLOROPHENOL	ND	9.6	4.8
2-METHYLNAPHTHALENE	ND	9.6	4.8
2-METHYLPHENOL	ND	9.6	4.8
2-NITROANILINE	ND	19	2.8
2-NITROPHENOL	ND	9.6	4.8
3,3'-DICHLOROBENZIDINE	ND	9.6	4.8
3-NITROANILINE	ND	9.6	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.6
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.7
4-CHLORO-3-METHYLPHENOL	ND	9.6	4.8
4-CHLOROANILINE	ND	9.6	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.6	4.8
4-METHYLPHENOL (1)	ND	9.6	4.8
4-NITROANILINE	ND	9.6	4.8
4-NITROPHENOL	ND	19	4.8
ACENAPHTHENE	ND	9.6	4.8
ACENAPHTHYLENE	ND	9.6	4.8
ANTHRACENE	ND	9.6	4.8
BENZO(A)ANTHRACENE	ND	9.6	4.8
BENZO(A)PYRENE	ND	9.6	4.8
BENZO(B)FLUORANTHENE	ND	9.6	4.8
BENZO(K)FLUORANTHENE	ND	9.6	4.8
BENZO(G,H,I)PERYLENE	ND	9.6	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.6	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.6	4.8
BIS(2-CHLORISOPROPYL)ETHER	ND	9.6	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.6
BUTYLBENZYLPHTHALATE	ND	9.6	4.8
CHRYSENE	ND	9.6	4.8
DI-N-BUTYLPHTHALATE	ND	9.6	4.8
DI-N-OCTYLPHTHALATE	ND	9.6	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.6	4.8
DIBENZOFURAN	ND	9.6	4.8
DIETHYLPHTHALATE	ND	19	5.8
DIMETHYLPHTHALATE	ND	19	4.8
FLUORANTHENE	ND	9.6	4.8
FLUORENE	ND	9.6	5.8
HEXACHLOROBENZENE	ND	9.6	4.8
HEXACHLOROCYCLOPENTADIENE	ND	9.6	4.8
HEXACHLOROETHANE	ND	9.6	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.6	4.8
ISOPHORONE	ND	9.6	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.6	4.8
N-NITROSDIPHENYLAMINE (2)	ND	9.6	4.8
NITROBENZENE	ND	9.6	4.8
PENTACHLOROPHENOL	ND	19	9.6
PHENANTHRENE	ND	19	5.8
PHENOL	ND	9.6	4.8
PYRENE	ND	9.6	4.8
1,1'-BIPHENYL	ND	9.6	4.8
ACETOPHENONE	ND	9.6	2.4
ATRAZINE	ND	19	9.6
BENZALDEHYDE	ND	9.6	4.8
CAPROLACTAM	ND	9.6	4.8
CARBAZOLE	ND	9.6	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	78	25-134
2-FLUOROBIPHENYL	65	43-125
2-FLUOROPHENOL	51	25-125
NITROBENZENE-D5	61	32-125
PHENOL-D5	56	25-125
TERPHENYL-D14	91	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 09/28/04
Project : MFA SITE 1, CTO 86	Date Received: 09/30/04
Batch No. : 041171	Date Extracted: 09/30/04 13:00
Sample ID: 86-S1-054	Date Analyzed: 10/05/04 00:24
Lab Samp ID: I171-03	Dilution Factor: .94
Lab File ID: RJX021	Matrix : WATER
Ext Btch ID: SVI034W	% Moisture : NA
Calib. Ref.: RIX007	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.5
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	80	25-134
2-FLUOROBIPHENYL	69	43-125
2-FLUOROPHENOL	54	25-125
NITROBENZENE-D5	68	32-125
PHENOL-D5	58	25-125
TERPHENYL-D14	93	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine



SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH FW INC.      Date Collected: 09/28/04
Project      : MFA SITE 1, CTO 86     Date Received: 09/30/04
Batch No.    : 041171                 Date Extracted: 09/30/04 13:00
Sample ID    : 86-S1-055              Date Analyzed: 10/05/04 00:59
Lab Samp ID  : 1171-04                Dilution Factor: .99
Lab File ID  : RJX022                 Matrix: WATER
Ext Btch ID  : SVI034W                % Moisture: NA
Calib. Ref.  : RIX007                 Instrument ID: T-042
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PARAMETERS	RESULTS (ug/L)	RI (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.9	4.9
2,4,6-TRICHLOROPHENOL	ND	9.9	4.9
2,4-DICHLOROPHENOL	ND	9.9	4.9
2,4-DIMETHYLPHENOL	ND	9.9	4.9
2,4-DINITROPHENOL	ND	20	9.9
2,4-DINITROTOLUENE	ND	20	9.9
2,6-DINITROTOLUENE	ND	20	5.9
2-CHLORONAPHTHALENE	ND	9.9	4.9
2-CHLOROPHENOL	ND	9.9	4.9
2-METHYLNAPHTHALENE	ND	9.9	4.9
2-METHYLPHENOL	ND	20	5.9
2-NITROANILINE	ND	9.9	4.9
2-NITROPHENOL	ND	9.9	4.9
3,1-DICHLOROBENZIDINE	ND	9.9	4.9
3-NITROANILINE	ND	9.9	4.9
4,6-DINITRO-2-METHYLPHENOL	ND	20	9.9
4-BROMOPHENYL-PHENYL ETHER	ND	20	6.9
4-CHLORO-3-METHYLPHENOL	ND	9.9	4.9
4-CHLOROANILINE	ND	9.9	4.9
4-CHLOROPHENYL-PHENYL ETHER	ND	9.9	4.9
4-METHYLPHENOL (1)	ND	9.9	4.9
4-NITROANILINE	ND	9.9	4.9
4-NITROPHENOL	ND	20	4.9
ACENAPHTHENE	ND	9.9	4.9
ACENAPHTHYLENE	ND	9.9	4.9
ANTHRACENE	ND	9.9	4.9
BENZO(A)ANTHRACENE	ND	9.9	4.9
BENZO(A)PYRENE	ND	9.9	4.9
BENZO(B)FLUORANTHENE	ND	9.9	4.9
BENZO(K)FLUORANTHENE	ND	9.9	4.9
BENZO(G,H,I)PERYLENE	ND	9.9	4.9
BIS(2-CHLOROETHOXY)METHANE	ND	9.9	4.9
BIS(2-CHLOROETHYL)ETHER	ND	9.9	4.9
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.9	4.9
BIS(2-ETHYLHEXYL)PHTHALATE	ND	20	9.9
BUTYLBENZYLPHTHALATE	ND	9.9	4.9
CHRYSENE	ND	9.9	4.9
DI-N-BUTYLPHTHALATE	ND	9.9	4.9
DI-N-OCTYLPHTHALATE	ND	9.9	4.9
DIBENZO(A,H)ANTHRACENE	ND	9.9	4.9
DIBENZOFURAN	ND	9.9	5.9
DIETHYLPHTHALATE	ND	20	5.9
DIMETHYLPHTHALATE	ND	9.9	4.9
FLUORANTHENE	ND	9.9	4.9
FLUORENE	ND	20	5.9
HEXACHLORO BENZENE	ND	9.9	4.9
HEXACHLOROCYCLOPENTADIENE	ND	9.9	4.9
HEXACHLOROETHANE	ND	9.9	4.9
INDENO(1,2,3-CD)PYRENE	ND	9.9	4.9
ISOPHORONE	ND	9.9	4.9
N-NITROSO-DI-N-PROPYLAMINE	ND	9.9	4.9
N-NITROSODIPHENYLAMINE (2)	ND	9.9	4.9
NITROBENZENE	ND	9.9	4.9
PENTACHLOROPHENOL	ND	20	9.9
PHENANTHRENE	ND	20	5.9
PHENOL	ND	9.9	4.9
PYRENE	ND	9.9	4.9
1,1'-BIPHENYL	ND	9.9	4.9
ACETOPHENONE	ND	9.9	2.9
ATRAZINE	ND	20	9.9
BENZALDEHYDE	ND	9.9	4.9
CAPROLACTAM	ND	9.9	4.9
CARBAZOLE	ND	9.9	4.9

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	81	25-134
2-FLUOROBIPHENYL	70	43-125
2-FLUOROPHENOL	57	25-125
NITROBENZENE-D5	68	32-125
PHENOL-D5	61	25-125
TERPHENYL-D14	93	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 041171

**SW7470A**  
**DISSOLVED MERCURY BY COLD VAPOR**

Four (4) water samples were received on 09/30/04 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time

Analysis met the holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within the QC limit.

4. Serial Dilution/Post Analytical Spike

Sample 1157-04 from another SDG was analyzed for serial dilution and post analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

MS/MSD sample was not designated for this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met. Samples were diluted 20 times due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 041171

Matrix : WATER  
Instrument ID : TI047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MOL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFTD	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGI059WB	ND	1	NA	.2	.1	10/01/0414:24	09/30/0416:00	M47J002010	M47J002008	HGI059W	NA	09/30/04
LCS1W	HGI059WL	5.04	1	NA	.2	.1	10/01/0414:26	09/30/0416:00	M47J002011	M47J002008	HGI059W	NA	09/30/04
LCD1W	HGI059WC	5.1	1	NA	.2	.1	10/01/0414:29	09/30/0416:00	M47J002012	M47J002008	HGI059W	NA	09/30/04
86-S1-052	I171-01	ND	20	NA	4	2	10/01/0415:02	09/30/0416:00	M47J002027	M47J002020	HGI059W	09/28/04	09/30/04
86-S1-053	I171-02	ND	20	NA	4	2	10/01/0415:04	09/30/0416:00	M47J002028	M47J002020	HGI059W	09/28/04	09/30/04
86-S1-054	I171-03	ND	20	NA	4	2	10/01/0415:06	09/30/0416:00	M47J002029	M47J002020	HGI059W	09/28/04	09/30/04
86-S1-055	I171-04	ND	20	NA	4	2	10/01/0415:08	09/30/0416:00	M47J002030	M47J002020	HGI059W	09/28/04	09/30/04

RL: Reporting Limit

7003

# ORIGINAL

LDC Report# 12637B2

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** September 28, 2004

**LDC Report Date:** October 21, 2004

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04171

### Sample Identification

86-S1-052

86-S1-053\*\*

86-S1-054

86-S1-055

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/1/04	N-Nitrosodiphenylamine	22.1	All samples in SDG 041171	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D1W (All samples in SDG 041171))	4-Nitrophenol	-	-	51 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	P
	Phenol	-	-	54 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

Samples 86-S1-052 and 86-S1-053\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.



**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 04I171**

SDG	Sample	Compound	Flag	A or P	Reason
04I171	86-S1-052 86-S1-053** 86-S1-054 86-S1-055	N-Nitrosodiphenylamine	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
04I171	86-S1-052 86-S1-053** 86-S1-054 86-S1-055	4-Nitrophenol  Phenol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Laboratory control samples (RPD)

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04I171**

No Sample Data Qualified in this SDG

ORIGINAL

LDC Report# 12637B4

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** September 28, 2004

**LDC Report Date:** October 28, 2004

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 04I171

**Sample Identification**

86-S1-052

86-S1-053\*\*

86-S1-054

86-S1-055

\*\*Indicates sample underwent EPA Level IV review

## **Introduction**

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample was not required by the method.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

Samples 86-S1-052 and 86-S1-053\*\* were identified as field duplicates. No dissolved mercury was detected in any of the samples.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 04I171**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 04I171**

No Sample Data Qualified in this SDG

**DECEMBER 2004**



## CHAIN-OF-CUSTODY RECORD

0016762-10





**TETRA TECH**  
1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-8696

NUMBER 10306

# CHAIN-OF-CUSTODY RECORD

PROJECT NAME <i>Site 1 - R6/04 Baseline</i>		PURCHASE ORDER NO. <i>20848 - Task 28</i>		ANALYSES REQUIRED								LABORATORY NAME <i>EMAX</i>		<b>Project Information Section</b> <b>Do not submit to Laboratory</b>																									
PROJECT LOCATION <i>Moffett</i>		PROJECT NO. <i>1990.086E</i>		<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 8270C - EXT. LIST</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">epa 7410A - EXT. LIST</div> </div>								LABORATORY ID (FOR LABORATORY) <i>04L115</i>																											
SAMPLER NAME <i>D. Harrison</i>		AIRBILL NUMBER <i>845907661634</i>										LABORATORY COMMENTS																											
PROJECT CONTACT <i>Lynn Jefferson</i>		PROJECT CONTACT PHONE NUMBER <i>949/756-7500</i>																																					
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		TYPE	T A T									LOCATION	DEPTH		QC																				
				3	4												START	END																					
<i>86-SI-082</i>	<i>12-14-01</i>	<i>1005</i>	<i>3</i>	<input checked="" type="checkbox"/>		<i>W</i>	<i>10 day</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<i>W1-24</i>			<i>Reg</i>																				
<i>86-SI-083</i>	<i>12-14-01</i>	<i>1035</i>	<i>3</i>	<input checked="" type="checkbox"/>		<i>W</i>	<i>10 day</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<i>W1-16</i>			<i>Reg</i>																				
<div style="font-size: 2em; opacity: 0.5;">X</div>																																							
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE <i>12-14-01</i>		RECEIVED BY (Signature) <i>Fe. O. X</i>		LABORATORY INSTRUCTIONS/COMMENTS <i>D. Mercury was field (11/11/01). EXT. LIST = Extended List</i>								SAMPLING COMMENT: <i>Site 1 - R6/04 Baseline 16</i>																									
COMPANY <i>TTFW</i>		TIME <i>1400</i>		COMPANY																																			
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		COMPOSITE DESCRIPTION																																	
COMPANY		TIME		COMPANY																																			
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																																	
COMPANY		TIME		COMPANY																																			

13002 A



**LABORATORIES, INC.**

1835 W. 205th Street

Torrance, CA 90501

Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 01-03-2005

EMAX Batch No.: 04L115

Attn: Lynn Jefferson

Tetra Tech FW, Inc.

1940 E Deere Ave, Suite 200

Santa Ana CA 92705

Subject: Laboratory Report

Project: MFA, Site 1, CTD 86

-----  
Enclosed is the Laboratory report for samples received on  
12/15/04. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-071	L115-01	12/13/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-072	L115-02	12/13/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-073	L115-03	12/13/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-075	L115-04	12/13/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-076	L115-05	12/13/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-077	L115-06	12/13/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-078	L115-07	12/14/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-079	L115-08	12/14/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-080	L115-09	12/14/04	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-081	L115-10	12/14/04	WATER	MERCURY DISSOLVED

A

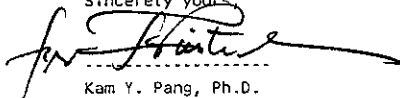
1000

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-082	L115-11	12/14/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-083	L115-12	12/14/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-072MS	L115-02M	12/13/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-072MSD	L115-02S	12/13/04	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.  
Laboratory Director

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04L115

**SW 3520C/8270C**  
**SEMI VOLATILE ORGANICS BY GC/MS**

Twelve (12) water samples were received on 12/15/04 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. Holding Time  
Analytical holding time was met.
2. Tuning and Calibration  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. Method Blank  
Method blank was free of contamination at the reporting limit.
4. Surrogate Recovery  
Recoveries were within QC limit.
5. Lab Control Sample/Lab Control Sample Duplicate  
Recoveries were within QC limit.
6. Matrix Spike/Matrix Spike Duplicate  
Sample L115-02 was spiked. All recoveries were within QC limit.
7. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 12/13/04
Project : MFA SITE 1, CTO 86	Date Received: 12/15/04
Batch No. : 04L115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-071	Date Analyzed: 12/22/04 18:32
Lab Samp ID: L115-01	Dilution Factor: .94
Lab File ID: RLH262	Matrix : WATER
Ext Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
4,6-TRIBROMOPHENOL	71	25-134
2-FLUOROBIPHENYL	73	43-125
3-FLUOROPHENOL	65	25-125
NITROBENZENE-D5	77	32-125
PHENOL-D5	71	25-125
TERPHENYL-D14	101	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 12/13/04
Project : MFA SITE 1, CTO 86	Date Received: 12/15/04
Batch No. : 04L115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-072	Date Analyzed: 12/22/04 18:59
Lab Samp ID: L115-02	Dilution Factor: .94
Lab File ID: RLH263	Matrix : WATER
Ext Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROTISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	66	25-134
2-FLUOROBIPHENYL	60	43-125
2-FLUOROPHENOL	53	25-125
NITROBENZENE-D5	62	32-125
PHENOL-D5	59	25-125
TERPHENYL-D14	91	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 12/13/04
Project : MFA SITE 1, CTO 86	Date Received: 12/15/04
Batch No. : 04L115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-073	Date Analyzed: 12/22/04 20:22
Lab Samp ID: L115-03	Dilution Factor: .94
Lab File ID: RLH266	Matrix : WATER
Ext Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
3ENZO(A)ANTHRACENE	ND	9.4	4.7
3ENZO(A)PYRENE	ND	9.4	4.7
3ENZO(B)FLUORANTHENE	ND	9.4	4.7
3ENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(C,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLORO BENZENE	ND	9.4	4.7
HEXACHLORO CYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	79	25-134
2-FLUOROBIPHENYL	78	43-125
2-FLUOROPHENOL	65	25-125
NITROBENZENE-D5	83	32-125
PHENOL-D5	68	25-125
TERPHENYL-D14	103	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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Client      : TETRA TECH FW INC.      Date Collected: 12/13/04
Project     : MFA SITE 1, CTO 86     Date Received: 12/15/04
Batch No.   : 04L115                 Date Extracted: 12/20/04 16:00
Sample ID   : 86-S1-075              Date Analyzed: 12/22/04 20:50
Lab Samp ID : L115-04                Dilution Factor: .94
Lab File ID : RLH267                 Matrix: WATER
Ext Btch ID : SVL023W                % Moisture: NA
Calib. Ref. : RLH007                 Instrument ID: 1-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLORODETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	77	25-134
2-FLUOROBIPHENYL	75	45-125
2-FLUOROPHENOL	65	25-125
NITROBENZENE-D5	77	25-125
PHENOL-D5	69	25-125
TERPHENYL-D14	100	42-126

RL: Reporting Limit

1): Cannot be separated from 3-Methylphenol

2): Cannot be separated from Diphenylamine



SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 12/13/04  
Project : MFA, SITE 1, CTO 86 Date Received: 12/15/04  
Batch No. : 041115 Date Extracted: 12/20/04 16:00  
Sample ID: 86-S1-076 Date Analyzed: 12/22/04 21:17  
Lab Samp ID: L115-05 Dilution Factor: .94  
Lab File ID: RLH268 Matrix : WATER  
Ext Btch ID: SVL023W % Moisture : NA  
Calib. Ref.: RLH007 Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	5.6
2-NITROANILINE	ND	19	7.9
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	4.7
DIETHYLPHTHALATE	ND	19	7.9
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	6.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	81	25-134
2-FLUOROBIPHENYL	81	43-125
2-FLUOROPHENOL	74	25-125
NITROBENZENE-D5	83	32-125
PHENOL-D5	74	25-125
TERPHENYL-D14	113	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 12/13/04
Project : MFA, SITE 1, CTO 86	Date Received: 12/15/04
Batch No. : 040115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-077	Date Analyzed: 12/22/04 21:45
Lab Samp ID: L115-06	Dilution Factor: .94
Lab File ID: RLH269	Matrix : WATER
Ext Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
4-DIMETHYLPHENOL	ND	9.4	4.7
4-DINITROPHENOL	ND	19	9.4
4-DINITROTOLUENE	ND	19	9.4
6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENYL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHthalate	ND	19	9.4
BUTYL BENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHthalate	ND	9.4	4.7
D1-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	73	25-134
2-FLUOROBIPHENYL	79	43-125
2-FLUOROPHENOL	71	25-125
NITROBENZENE-D5	82	32-125
PHENOL-D5	72	25-125
TERPHENYL-D14	109	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 12/14/04
Project : MFA SITE 1, CTD 86	Date Received: 12/15/04
Batch No. : 04L115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-078	Date Analyzed: 12/22/04 22:13
Lab Samp ID: L115-07	Dilution Factor: .94
Lab File ID: RLH270	Matrix : WATER
Ext. Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORENE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	81	25-134
3-FLUOROBIPHENYL	85	43-125
3-FLUOROPHENOL	83	25-125
NITROBENZENE-D5	89	32-125
PHENOL-D5	87	25-125
TERPHENYL-D14	103	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : YETRA TECH FW, INC.	Date Collected: 12/14/04
Project : MFA SITE 1, CTO 86	Date Received: 12/15/04
Batch No. : 04L115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-079	Date Analyzed: 12/22/04 22:40
Lab Samp ID: L115-08	Dilution Factor: .94
Lab File ID: RLH271	Matrix : WATER
Ext Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	4.7
HEXACHLOROBENZENE	ND	9.4	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
4-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
4-NITROSO-DIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
2,2,4,4,6-PENTACHLOROPHENOL	ND	19	9.4
2-PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
4,4'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	74	25-134	
2-FLUOROBIPHENYL	74	43-125	
2-FLUOROPHENOL	70	25-125	
NITROBENZENE-D5	82	32-125	
PHENOL-D5	71	25-125	
TERPHENYL-D14	106	42-126	

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 12/14/04
Project : MFA, SITE 1, CTO 86	Date Received: 12/15/04
Batch No. : 04L115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-080	Date Analyzed: 12/22/04 23:08
Lab Samp ID: L115-09	Dilution Factor: 94
Lab File ID: RLH272	Matrix : WATER
Ext Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROGLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,5-DICHLORO BENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
BIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
BIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	4.7
DIETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	69	25-134
2-FLUOROBIPHENYL	74	43-125
2-FLUOROPHENOL	67	25-125
NITROBENZENE-D5	85	32-125
PHENOL-D5	70	25-125
TERPHENYL-D14	103	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 12/14/04
Project : MFA, SITE 1, CTO 86	Date Received: 12/15/04
Batch No. : 04L115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-081	Date Analyzed: 12/22/04 23:35
Lab Samp ID: L115-10	Dilution Factor: .94
Lab File ID: RLH273	Matrix : WATER
Ext Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	68	25-134
2-FLUOROBIPHENYL	79	43-125
2-FLUOROPHENOL	77	25-125
NITROBENZENE-D5	92	32-125
PHENOL-D5	76	25-125
TERPHENYL-D14	100	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 12/14/04
Project : MFA, SITE 1, CTO 86	Date Received: 12/15/04
Batch No. : 04L115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-082	Date Analyzed: 12/23/04 00:03
Lab Samp ID: L115-11	Dilution Factor: 94
Lab File ID: RLH274	Matrix : WATER
Ext Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLORO BENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	68	25-134
2-FLUOROBIPHENYL	74	43-125
2-FLUOROPHENOL	68	25-125
NITROBENZENE-D5	81	32-125
PHENOL-D5	75	25-125
TERPHENYL-D14	89	42-126

RL: Reporting Limit

(1): Cannot be separated from 3-Methylphenol

(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 12/14/04
Project : MFA SITE 1, CTO 86	Date Received: 12/15/04
Batch No. : 04L115	Date Extracted: 12/20/04 16:00
Sample ID: 86-S1-083	Date Analyzed: 12/23/04 00:30
Lab Samp ID: L115-12	Dilution Factor: .94
Lab File ID: RLH275	Matrix : WATER
Ext Btch ID: SVL023W	% Moisture : NA
Calib. Ref.: RLH007	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
3-BENZO(A)ANTHRACENE	ND	9.4	4.7
3-BENZO(A)PYRENE	ND	9.4	4.7
3-BENZO(B)FLUORANTHENE	ND	9.4	4.7
3-BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	2.3
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	68	25-134	
2-FLUOROBIPHENYL	77	43-125	
2-FLUOROPHENOL	69	25-125	
NITROBENZENE-D5	82	32-125	
PHENOL-D5	70	25-125	
TERPHENYL-D14	112	42-126	

RL: Reporting Limit

(1): Cannot be separated from 3-Methylphenol

(2): Cannot be separated from Diphenylamine



# **CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 04L115

## **METHOD 7470A DISSOLVED MERCURY BY COLD VAPOR**

Twelve (12) water samples were received on 12/15/04 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. Holding Time  
Analysis met holding time criteria.
2. Method Blank  
Method blank was free of contamination at the reporting limit.
3. Lab Control Sample/Lab Control Sample Duplicate  
Lab control results were within QC limit.
4. Serial Dilution / Post-Analytical Spike  
Sample L115-02 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.
5. Matrix Spike/Matrix Spike Duplicate  
Sample L115-02 was spiked. Recoveries were within QC limit.
6. Sample Analysis  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.  
  
Samples were reported from dilution runs due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 04L115

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	FWAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL	REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
HBLK1W	HGL0304B	ND	1	NA	2	.1	12/29/0415:41	12/29/0412:30	M47L030011	M47L030009		HGL030W	NA	12/29/04
LCS1W	HGL0304L	4.98	1	NA	2	.1	12/29/0415:43	12/29/0412:30	M47L030012	M47L030009		HGL030W	NA	12/29/04
LCD1W	HGL0304C	4.97	1	NA	2	.1	12/29/0415:45	12/29/0412:30	M47L030013	M47L030009		HGL030W	NA	12/29/04
86-S1-072AS	L115-02A	40	20	NA	4	2	12/29/0416:59	12/29/0412:30	M47L030045	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-072	L115-02	ND	20	NA	4	2	12/29/0417:01	12/29/0412:30	M47L030046	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-072DL	L115-02T	ND	100	NA	20	10	12/29/0417:03	12/29/0412:30	M47L030047	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-072HS	L115-02M	5.6	20	NA	4	2	12/29/0417:06	12/29/0412:30	M47L030048	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-072HSD	L115-02S	5.38	20	NA	4	2	12/29/0417:08	12/29/0412:30	M47L030049	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-071	L115-01	ND	20	NA	4	2	12/29/0417:10	12/29/0412:30	M47L030050	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-073	L115-03	ND	20	NA	4	2	12/29/0417:12	12/29/0412:30	M47L030051	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-075	L115-04	ND	20	NA	4	2	12/29/0417:14	12/29/0412:30	M47L030052	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-076	L115-05	ND	20	NA	4	2	12/29/0417:16	12/29/0412:30	M47L030053	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-077	L115-06	ND	20	NA	4	2	12/29/0417:19	12/29/0412:30	M47L030054	M47L030043		HGL030W	12/13/04	12/15/04
86-S1-078	L115-07	ND	20	NA	4	2	12/29/0417:25	12/29/0412:30	M47L030057	M47L030055		HGL030W	12/14/04	12/15/04
86-S1-079	L115-08	ND	20	NA	4	2	12/29/0417:28	12/29/0412:30	M47L030058	M47L030055		HGL030W	12/14/04	12/15/04
86-S1-080	L115-09	ND	20	NA	4	2	12/29/0417:30	12/29/0412:30	M47L030059	M47L030055		HGL030W	12/14/04	12/15/04
86-S1-081	L115-10	ND	20	NA	4	2	12/29/0417:32	12/29/0412:30	M47L030060	M47L030055		HGL030W	12/14/04	12/15/04
86-S1-082	L115-11	ND	20	NA	4	2	12/29/0417:34	12/29/0412:30	M47L030061	M47L030055		HGL030W	12/14/04	12/15/04
86-S1-083	L115-12	ND	20	NA	4	2	12/29/0417:36	12/29/0412:30	M47L030062	M47L030055		HGL030W	12/14/04	12/15/04

RL: Reporting Limit

7003

# COPY

LDC Report# 13002A2

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** December 13 through December 14, 2004  
**LDC Report Date:** January 14, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 04L115

### Sample Identification

86-S1-071\*\*  
86-S1-072  
86-S1-073  
86-S1-075  
86-S1-076  
86-S1-077\*\*  
86-S1-078  
86-S1-079  
86-S1-080\*\*  
86-S1-081  
86-S1-082  
86-S1-083  
86-S1-072MS  
86-S1-072MSD

\*\*Indicates sample underwent EPA Level IV review

✓  
JB  
3/2/05

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
12/22/04	4,6-Dinitro-2-methylphenol	29.7	All samples in SDG 04L115	J (all detects) UJ (all non-detects)	A

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
12/2/04	Benzaldehyde	23.8	All samples in SDG 04L115	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

#### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

#### **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

#### **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

#### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on

which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-076 and 86-S1-077\*\* and samples 86-S1-079 and 86-S1-080\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 04L115**

SDG	Sample	Compound	Flag	A or P	Reason
04L115	86-S1-071** 86-S1-072 86-S1-073 86-S1-075 86-S1-076 86-S1-077** 86-S1-078 86-S1-079 86-S1-080** 86-S1-081 86-S1-082 86-S1-083	4,6-Dinitro-2-methylphenol	J (all detects) UJ (all non-detects)	A	Continuing calibration (CCV %D)
04L115	86-S1-071** 86-S1-072 86-S1-073 86-S1-075 86-S1-076 86-S1-077** 86-S1-078 86-S1-079 86-S1-080** 86-S1-081 86-S1-082 86-S1-083	Benzaldehyde	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 04L115**

No Sample Data Qualified in this SDG



# COPY

LDC Report# 13002A4

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** December 13 through December 14, 2004  
**LDC Report Date:** January 14, 2005  
**Matrix:** Water  
**Parameters:** Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 04L115

### Sample Identification

86-S1-071\*\*  
86-S1-072  
86-S1-073  
86-S1-075  
86-S1-076  
86-S1-077\*\*  
86-S1-078  
86-S1-079  
86-S1-080\*\*  
86-S1-081  
86-S1-082  
86-S1-083  
86-S1-072MS  
86-S1-072MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample was not required by the method.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

Samples 86-S1-076 and 86-S1-077\*\* and samples 86-S1-079 and 86-S1-080\*\* were identified as field duplicates. No mercury was detected in any of the samples.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Mercury - Data Qualification Summary - SDG 04L115**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**  
**Mercury - Laboratory Blank Data Qualification Summary - SDG 04L115**

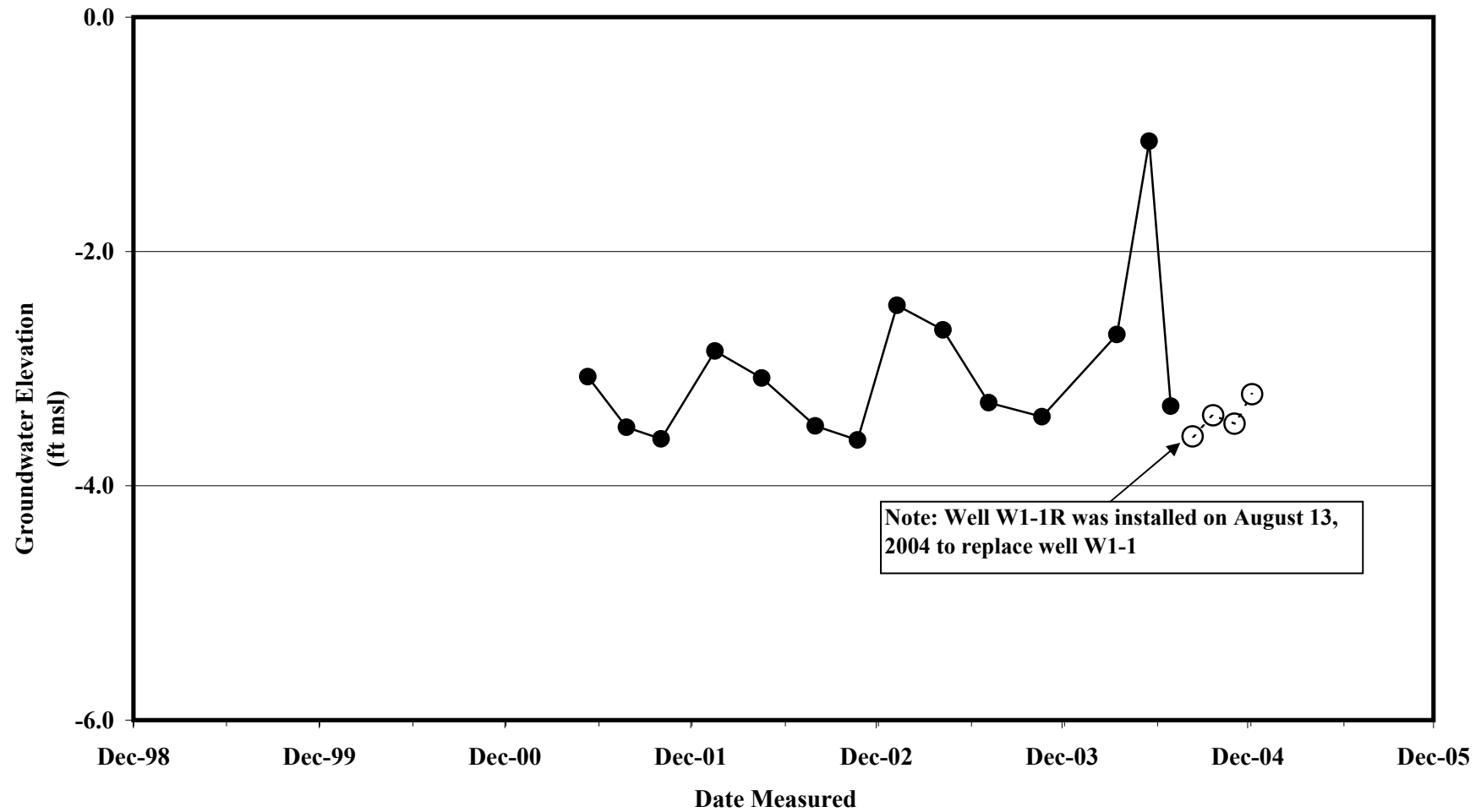
No Sample Data Qualified in this SDG

# **APPENDIX D**

## **GROUNDWATER HYDROGRAPHS**

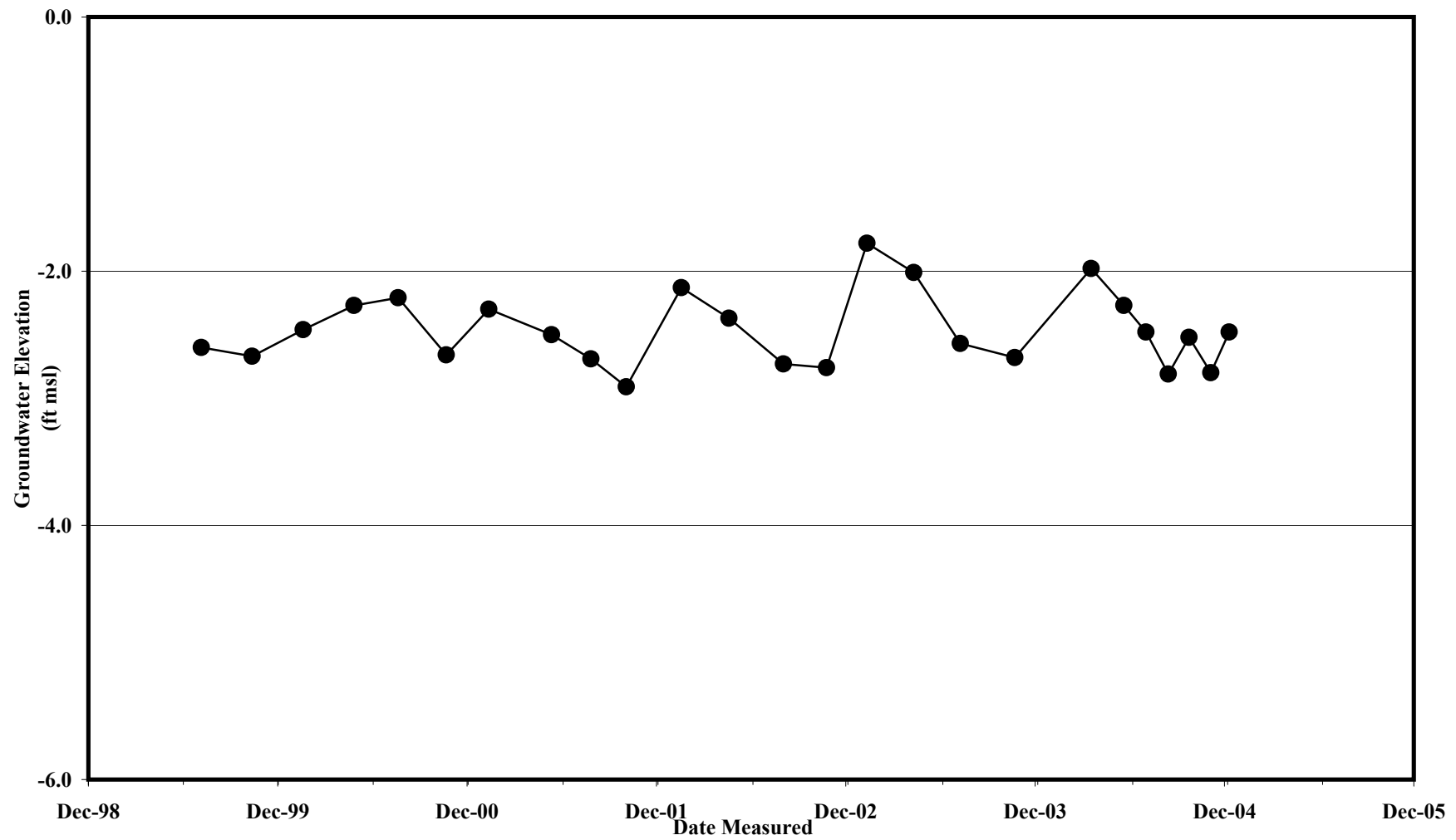
**FIGURE D-1**

**GROUNDWATER HYDROGRAPHS, WELLS W1-1 AND W1-1R**



**FIGURE D-2**

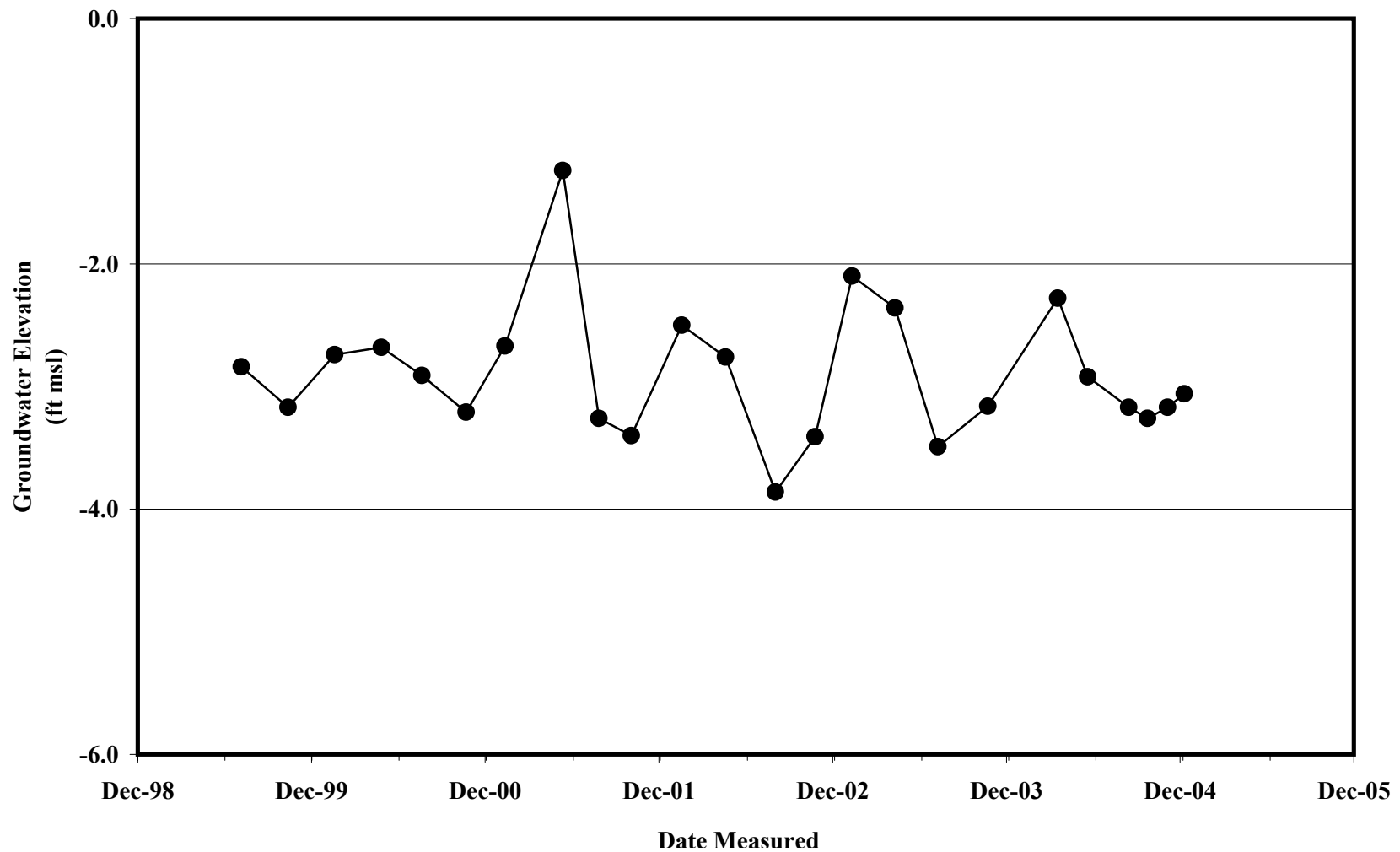
**GROUNDWATER HYDROGRAPH, WELL W1-5**





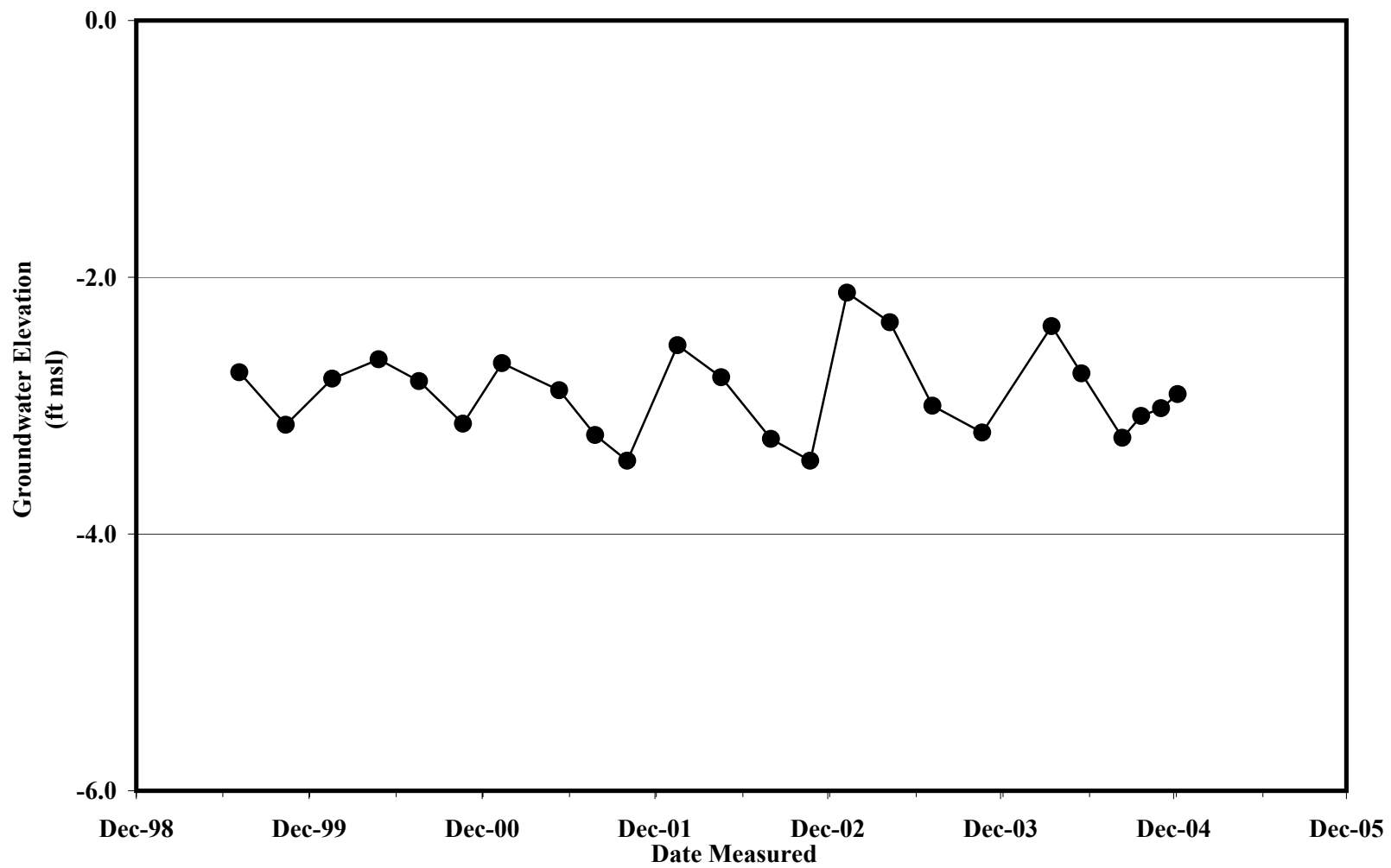
**FIGURE D-3**

**GROUNDWATER HYDROGRAPH, WELL W1-6**

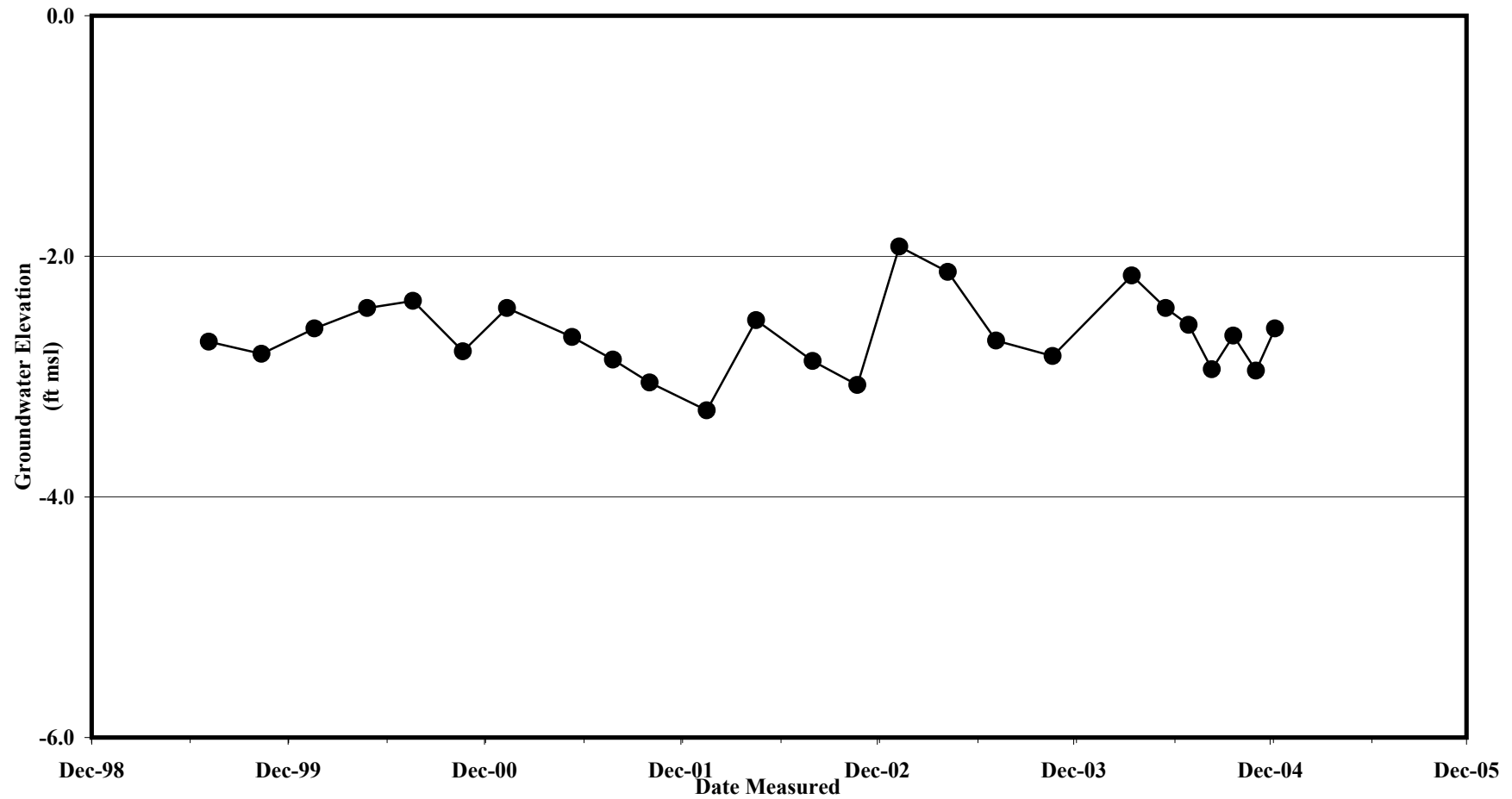


**FIGURE D-4**

**GROUNDWATER HYDROGRAPH, WELL W1-7**

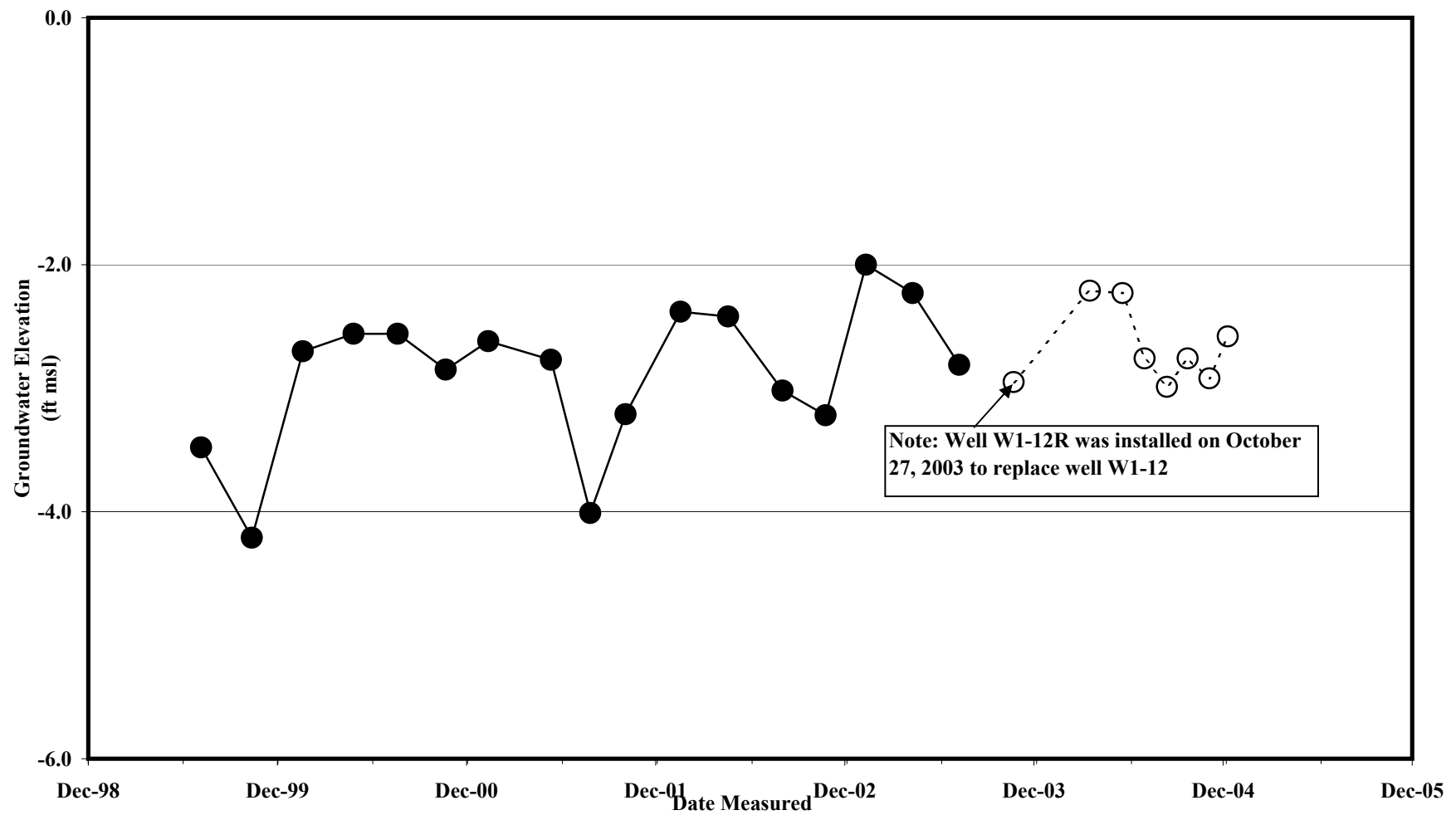


**FIGURE D-5**  
**GROUNDWATER HYDROGRAPH, WELL W1-8**



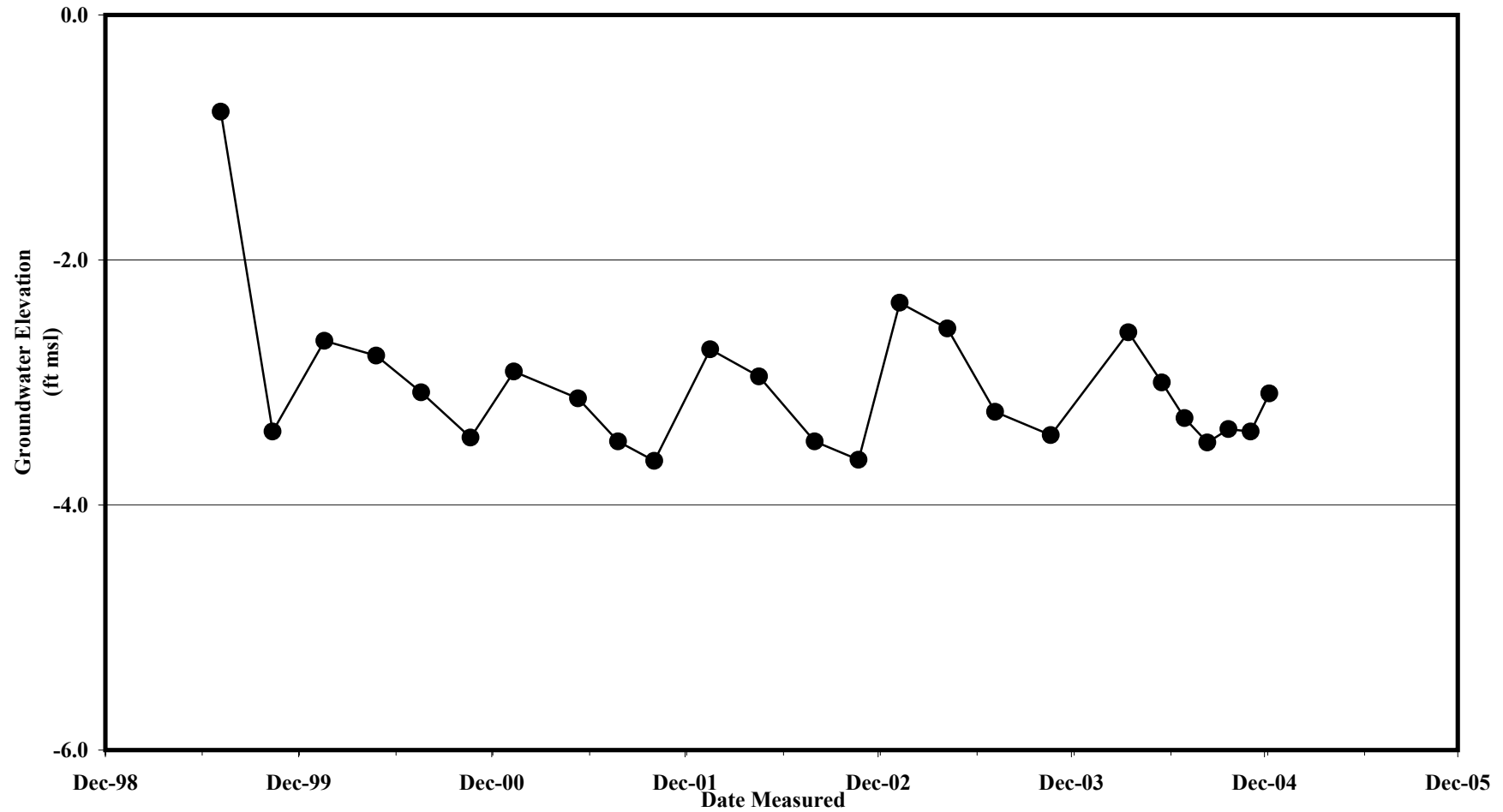
**FIGURE D-6**

**GROUNDWATER HYDROGRAPHS, WELLS W1-12 AND W1-12R**

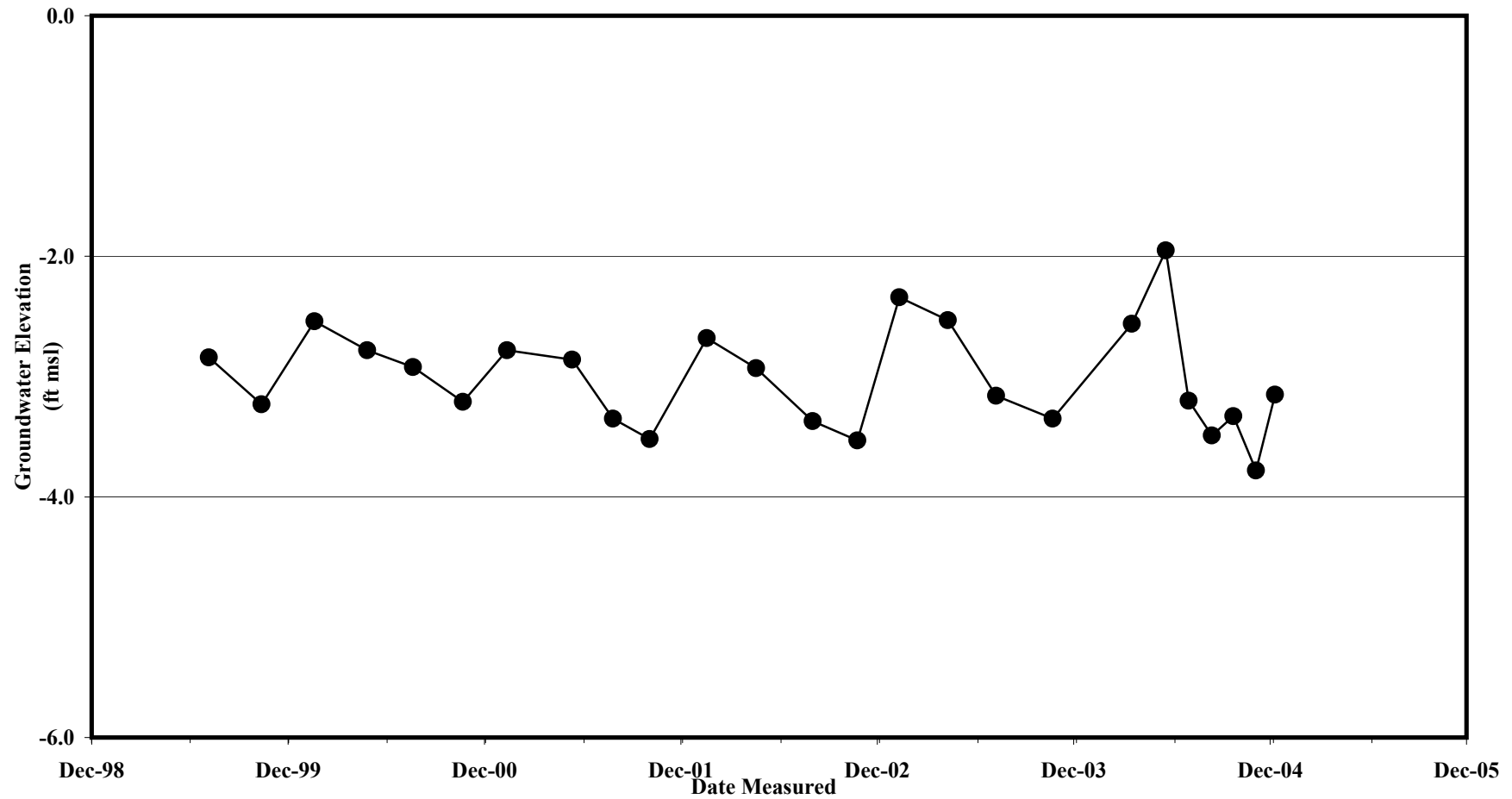


**FIGURE D-7**

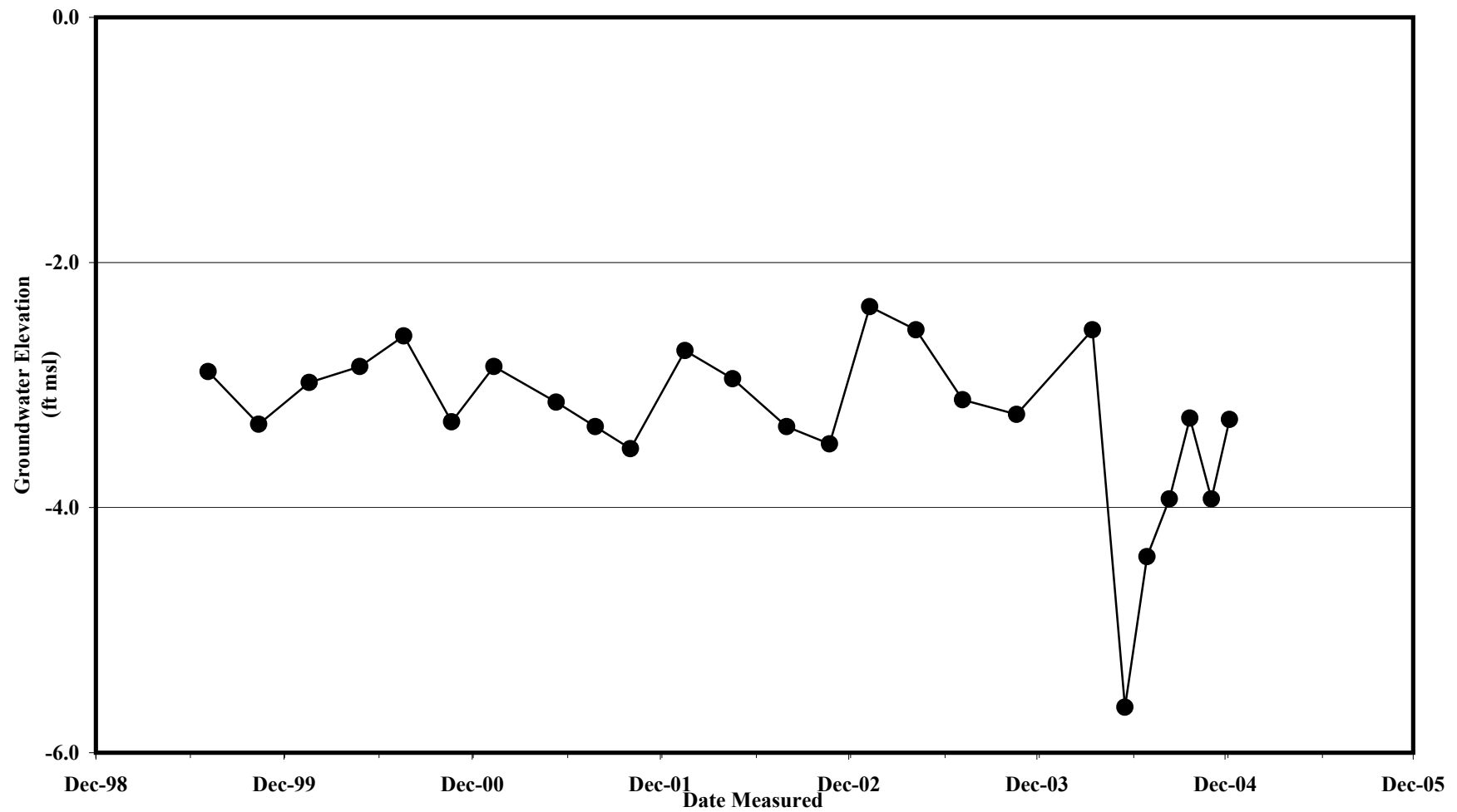
**GROUNDWATER HYDROGRAPH, WELL W1-14**



**FIGURE D-8**  
**GROUNDWATER HYDROGRAPH, WELL W1-15**

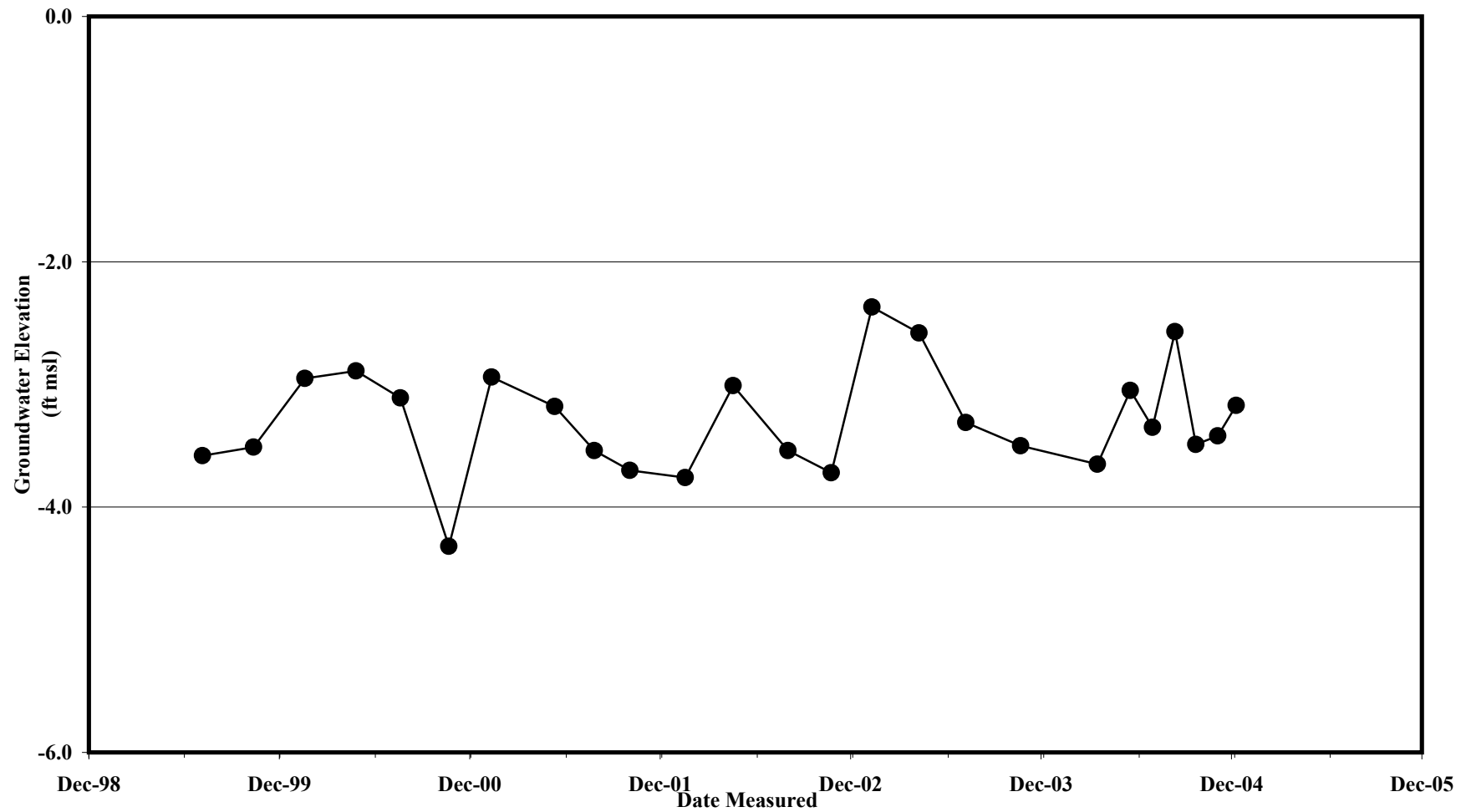


**FIGURE D-9**  
**GROUNDWATER HYDROGRAPH, WELL W1-16**



**FIGURE D-10**

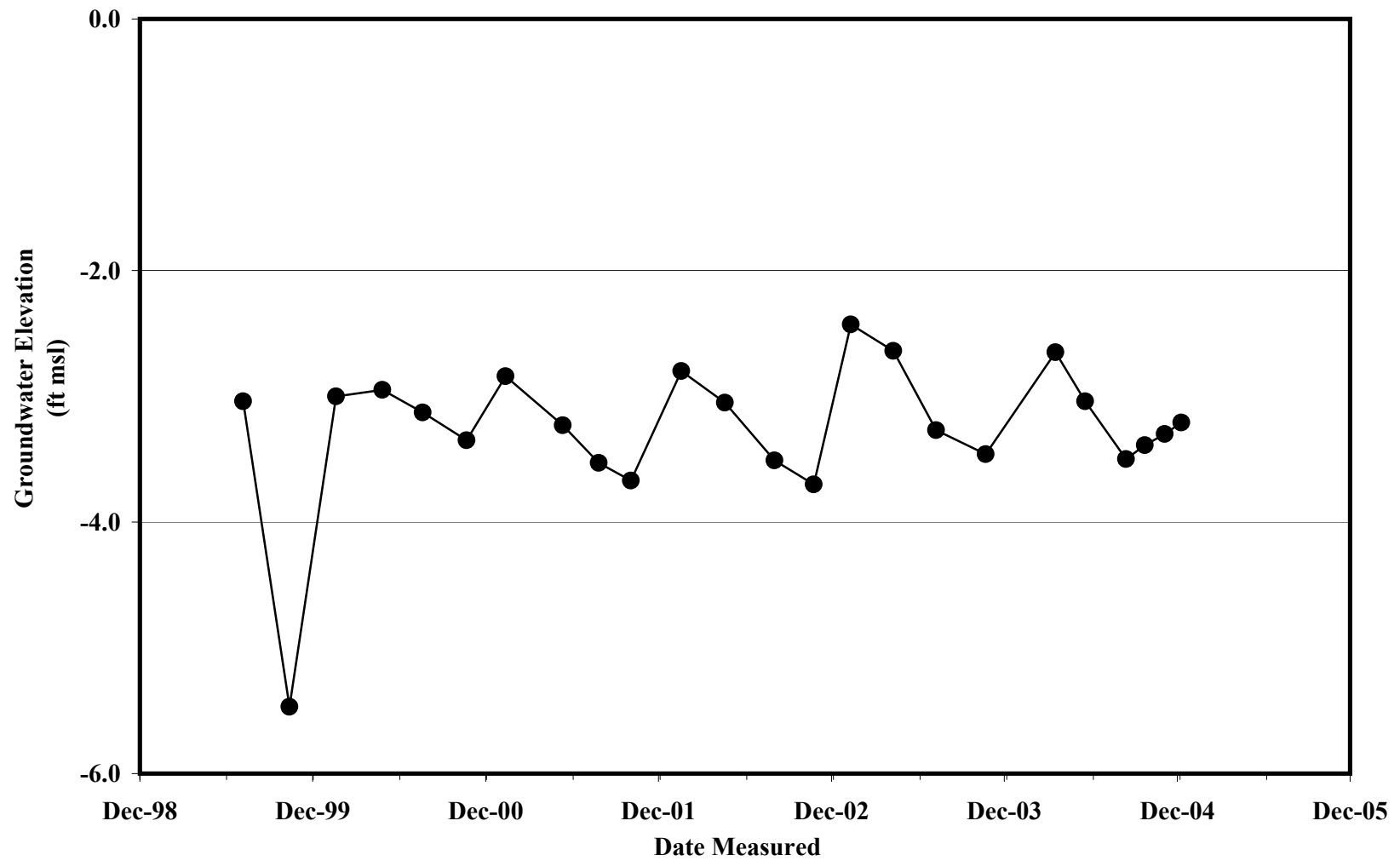
**GROUNDWATER HYDROGRAPH, WELL W1-19**





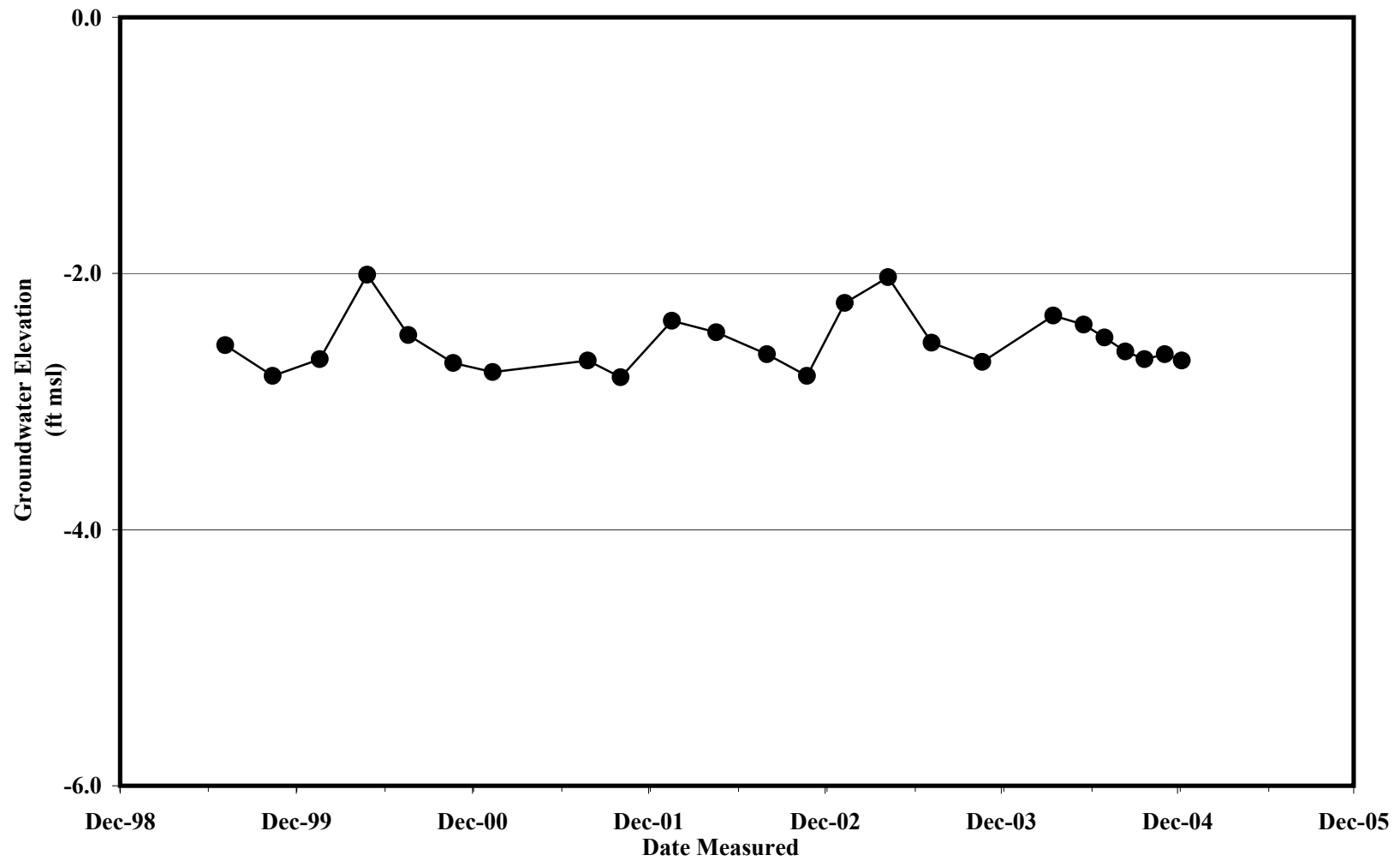
**FIGURE D-11**

**GROUNDWATER HYDROGRAPH, WELL W1-20**



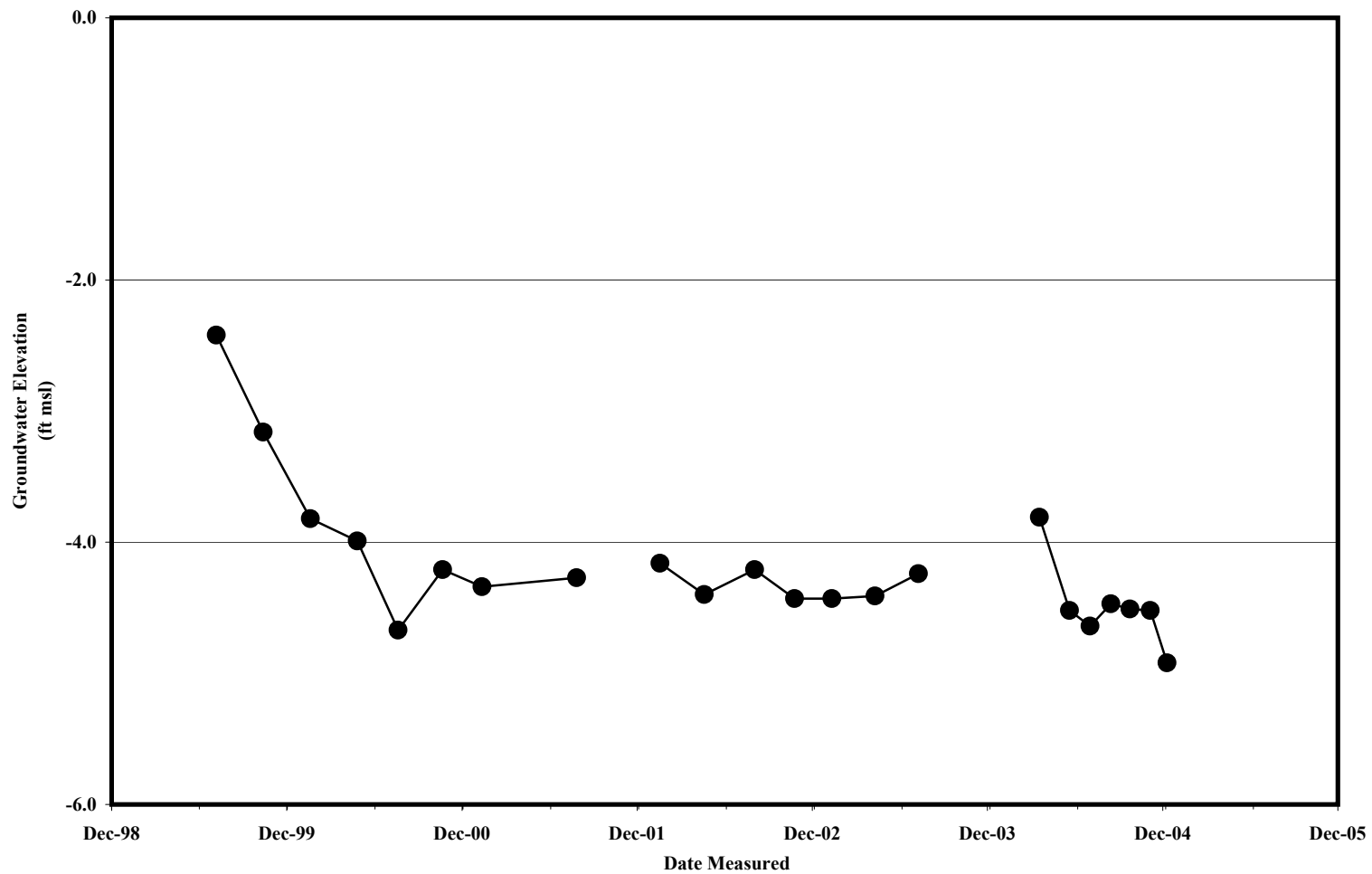
**FIGURE D-12**

**GROUNDWATER HYDROGRAPH, WELL W1-22**



**FIGURE D-13**

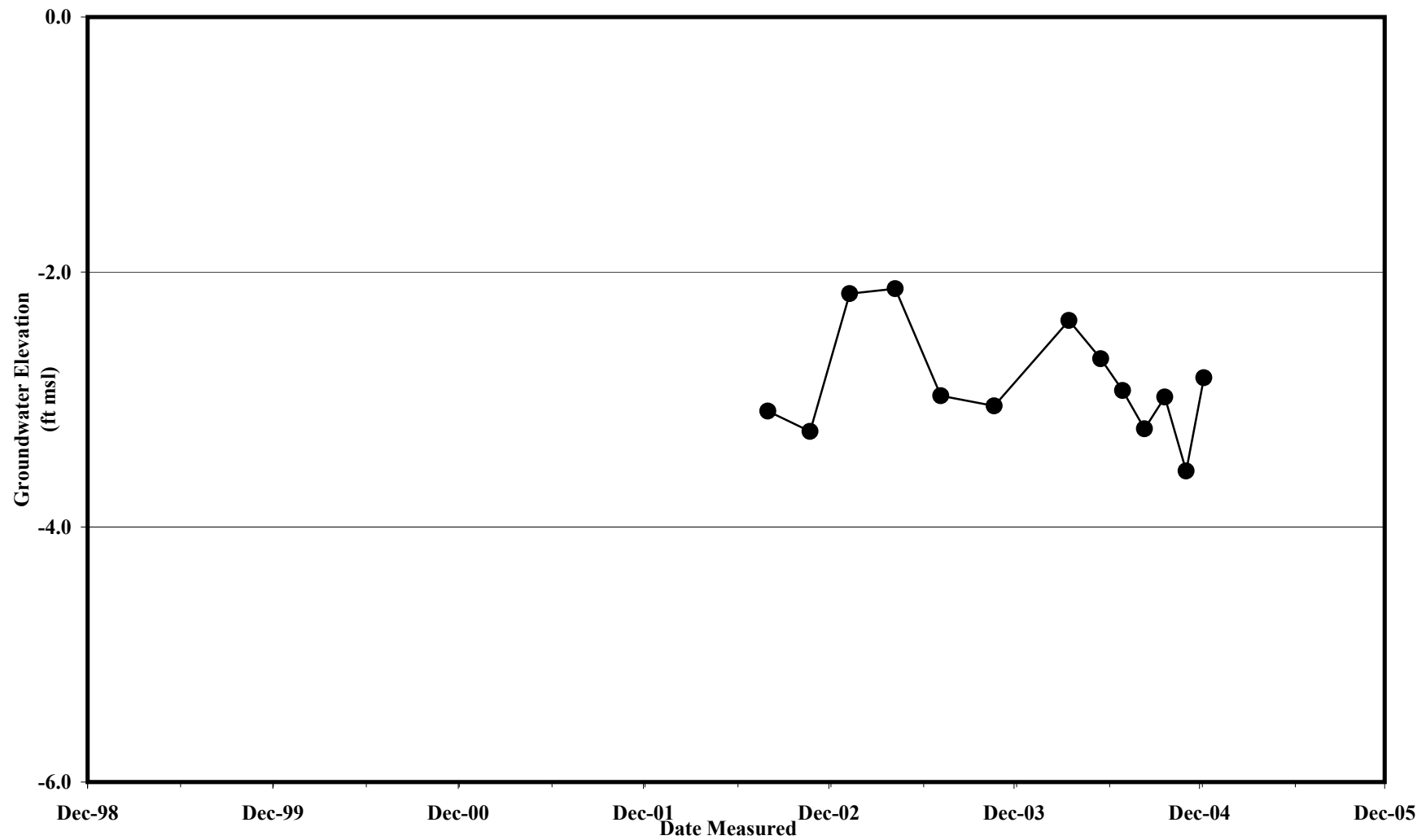
**GROUNDWATER HYDROGRAPH, WELL W1-23**



**Notes:**

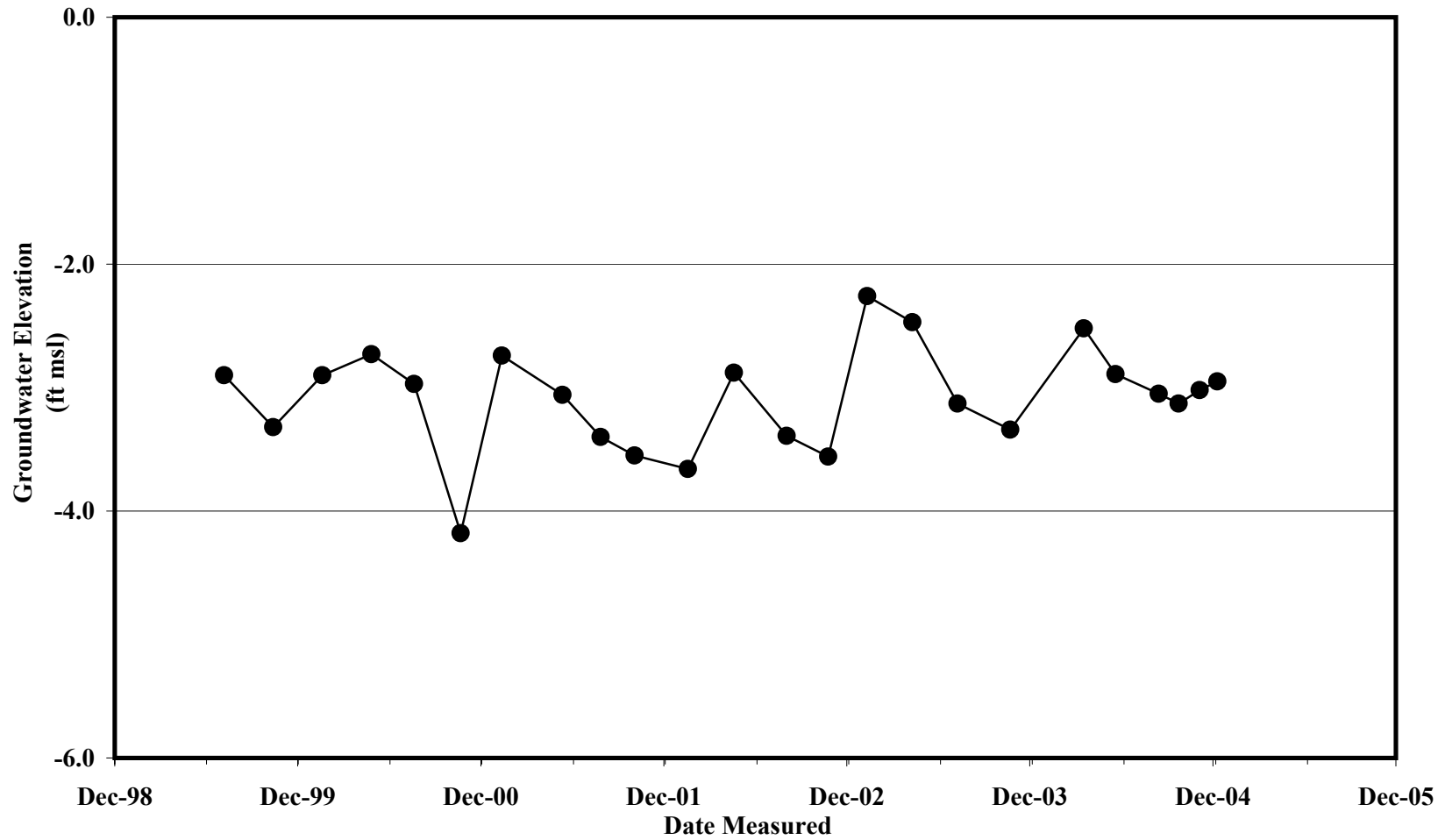
1. Breaks in hydrograph line indicate that the collection trench was dry during the respective time period.

**FIGURE D-14**  
**GROUNDWATER HYDROGRAPH, WELL W1-24**



**FIGURE D-15**

**GROUNDWATER HYDROGRAPH, PIEZOMETER PZ1-18**



**FIGURE D-16**

**GROUNDWATER HYDROGRAPH, WELL PZ1-21**

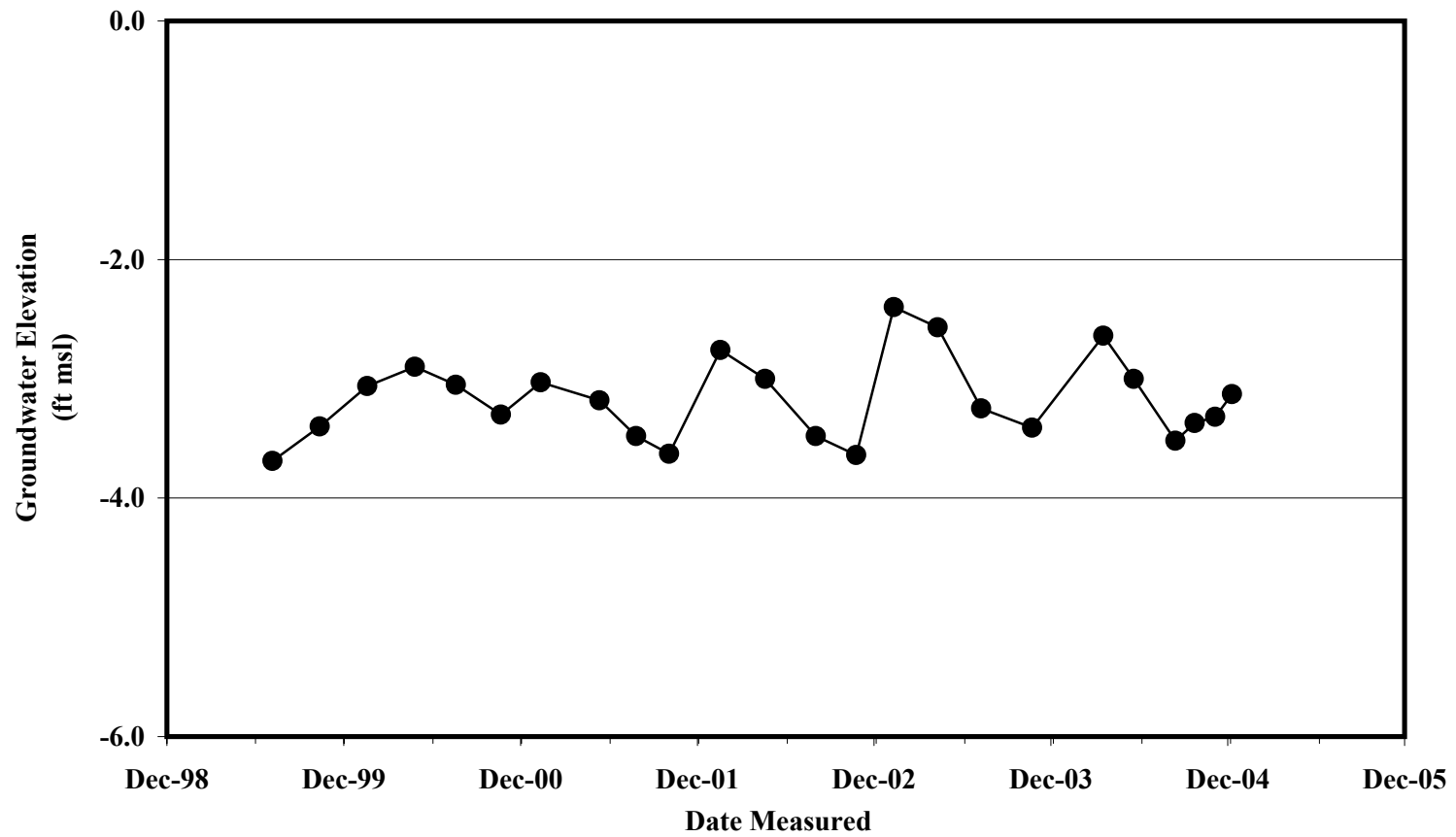
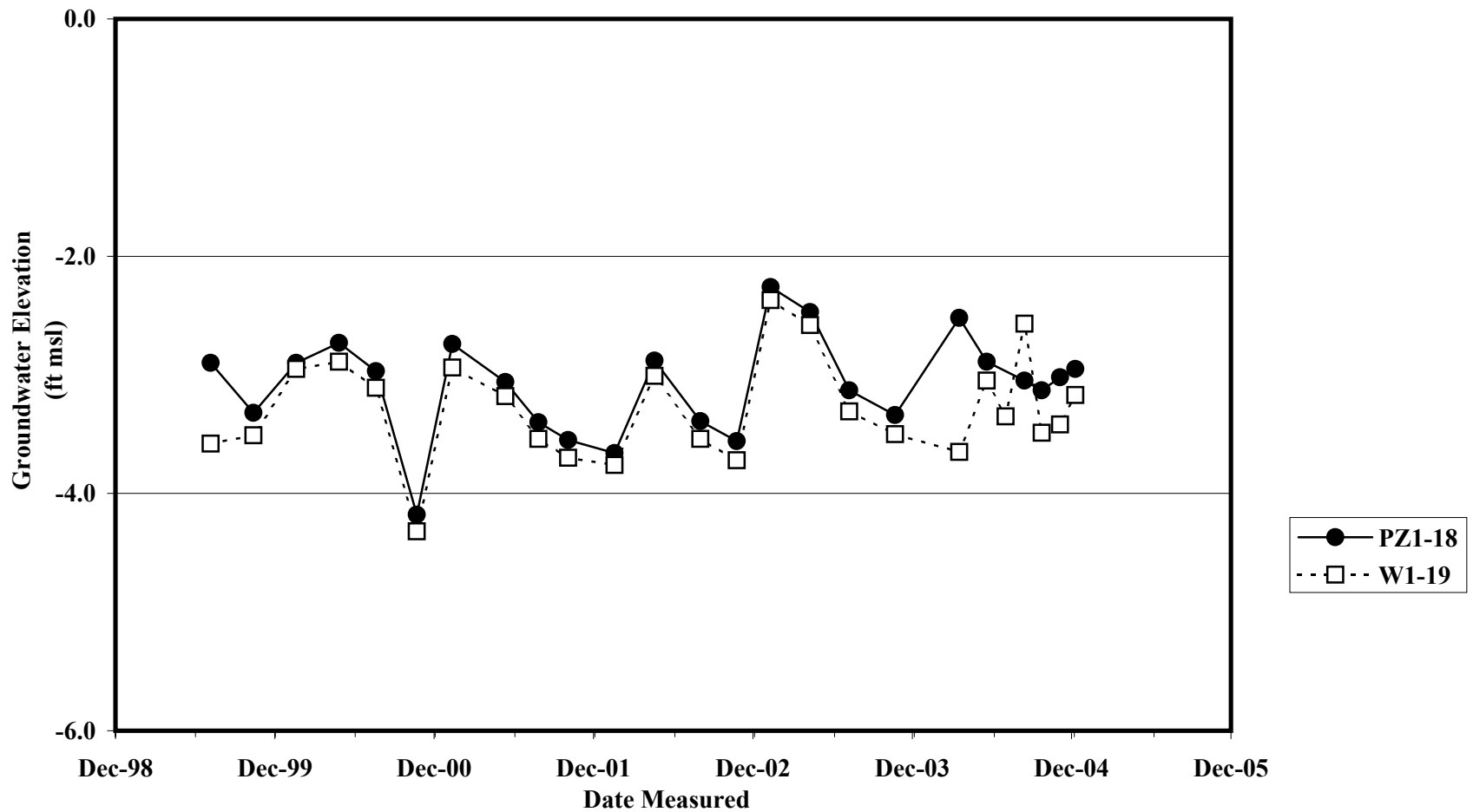


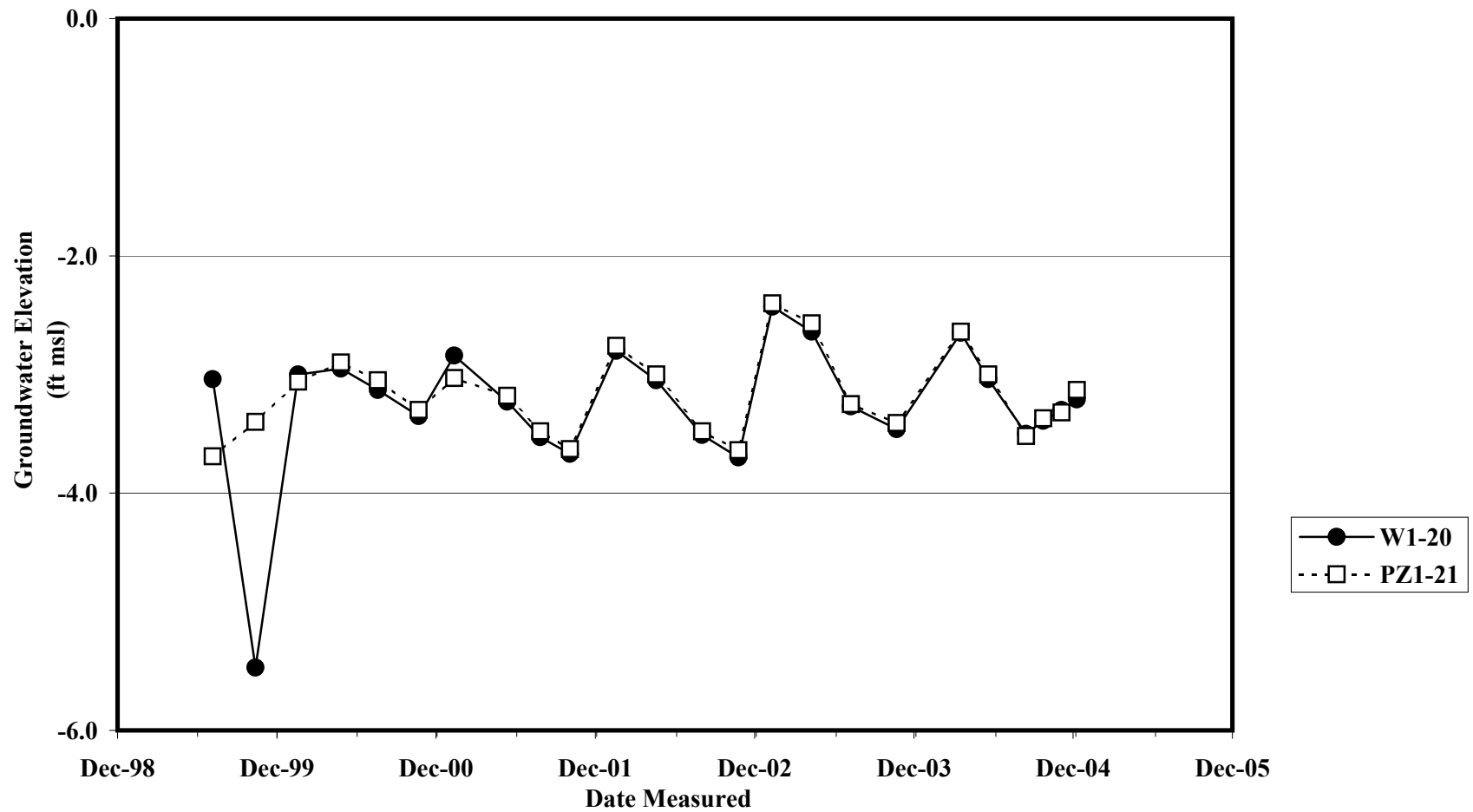
FIGURE D-17

GROUNDWATER HYDROGRAPHS, PIEZOMETER PZ1-18 AND WELL W1-19



**FIGURE D-18**

**GROUNDWATER HYDROGRAPHS, PIEZOMETER PZ1-21 AND WELL W1-20**





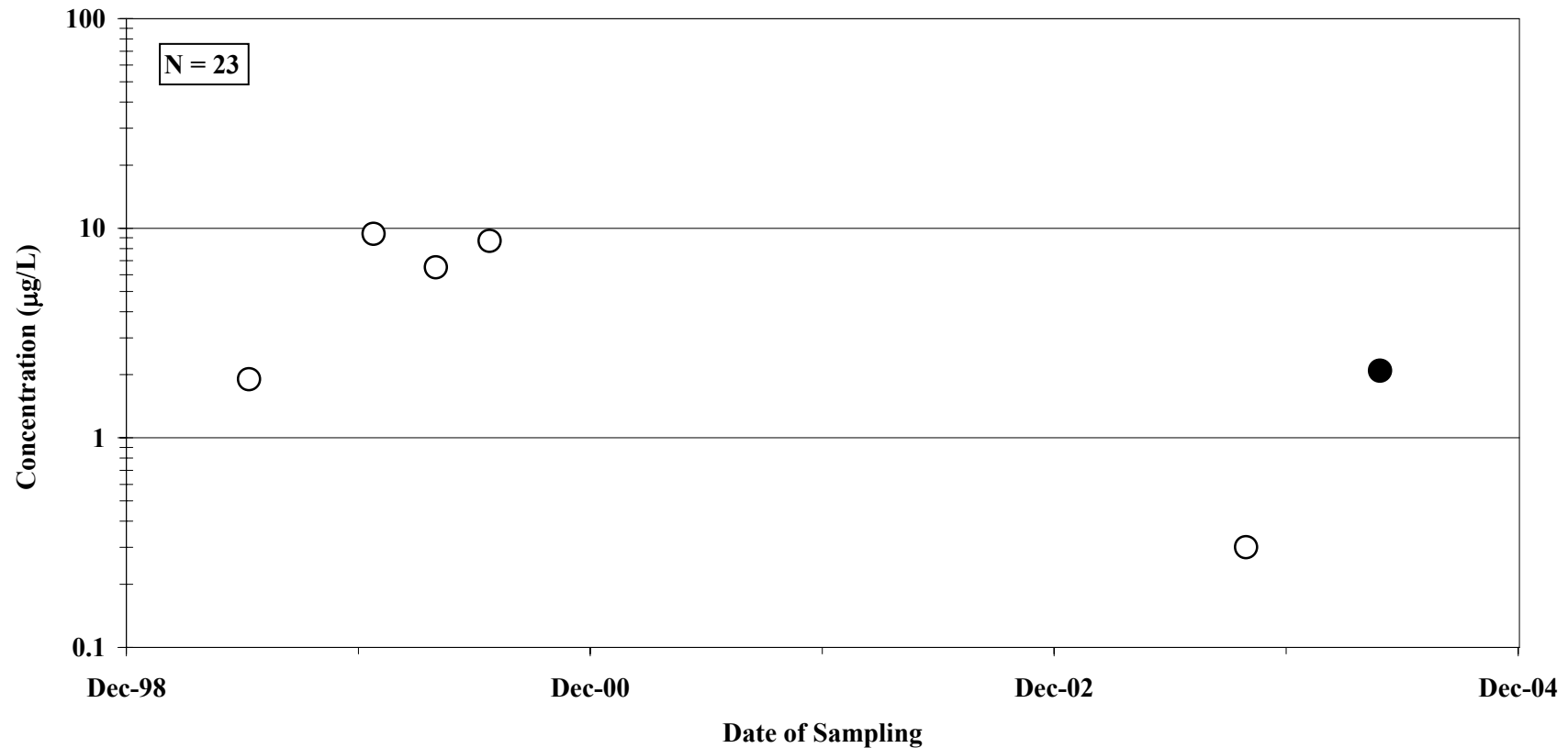
**APPENDIX E**

**GROUNDWATER MONITORING POINT DATA GRAPHS**

**(Provided on CD only)**

**FIGURE E-1**

**DISSOLVED ANTIMONY CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

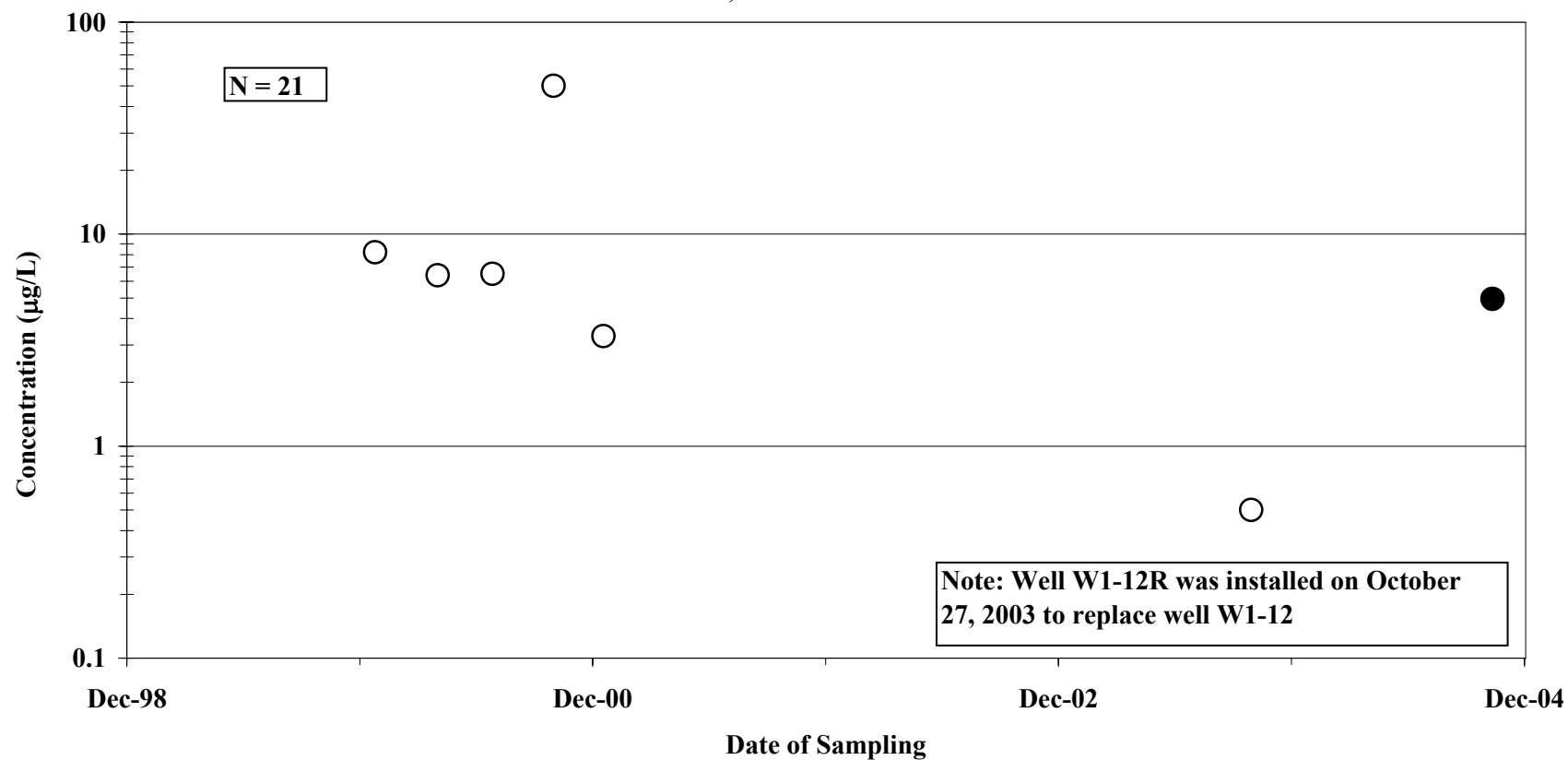


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-2**

**DISSOLVED ANTIMONY CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

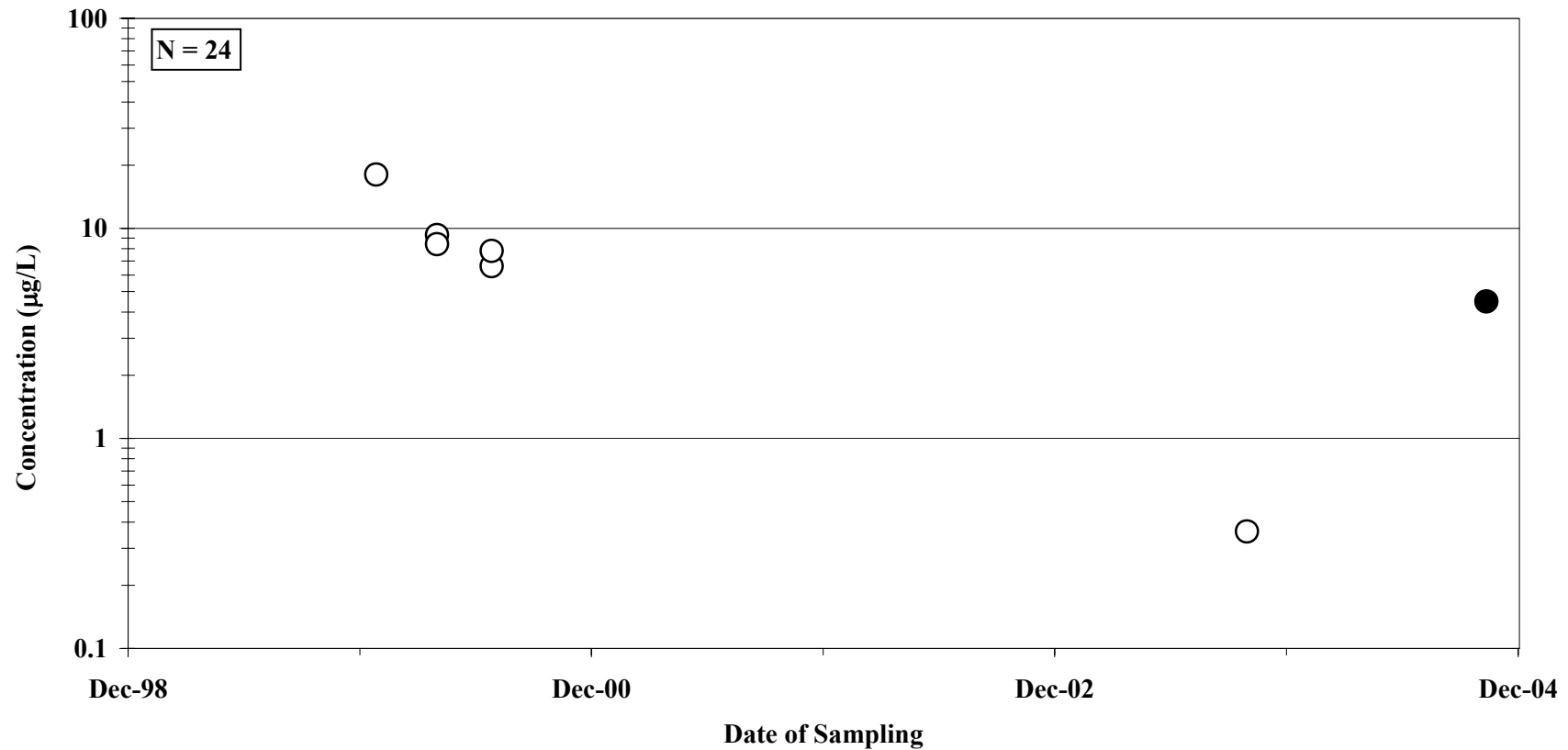


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-3**

**DISSOLVED ANTIMONY CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

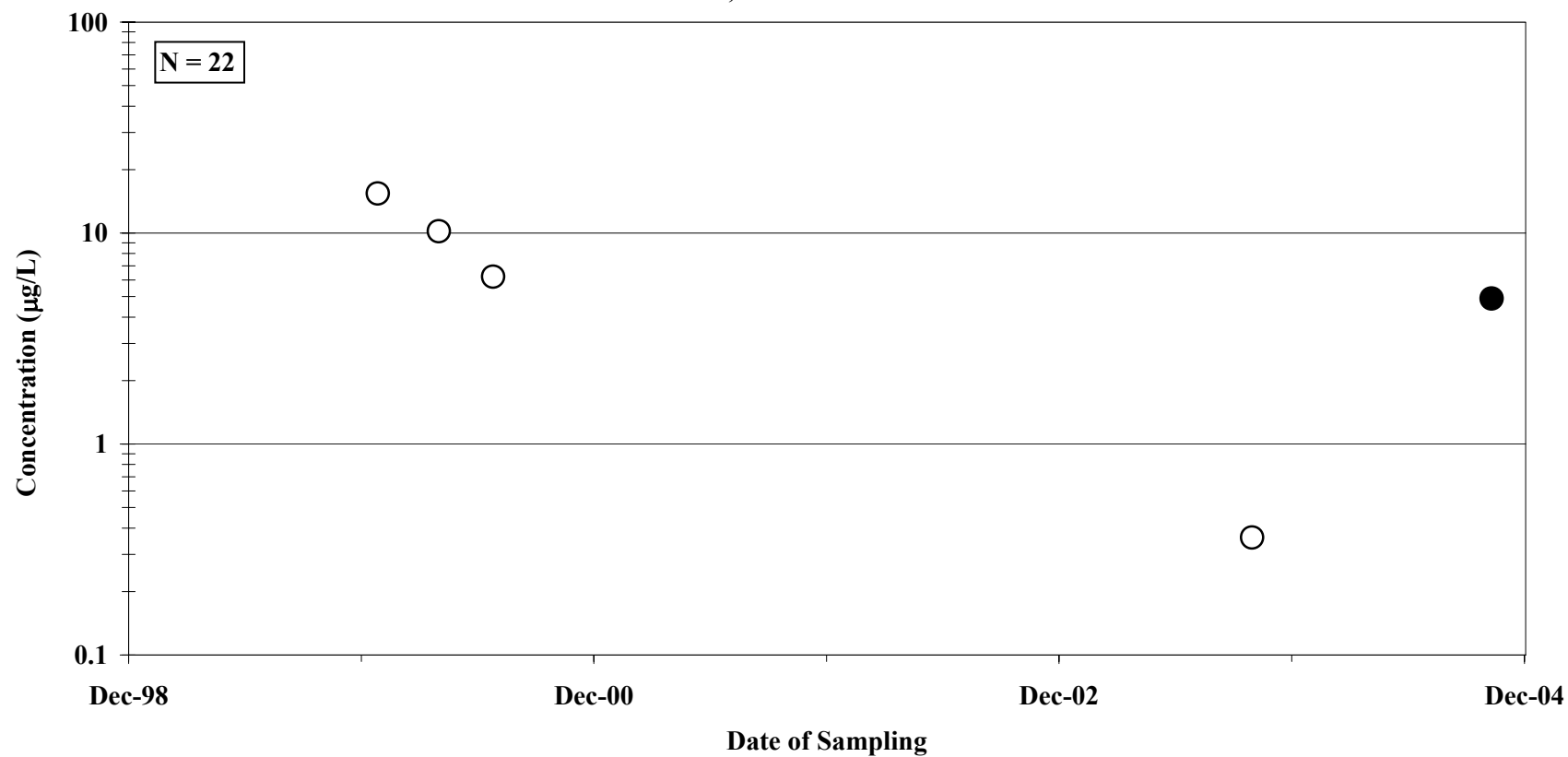


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-4**

**DISSOLVED ANTIMONY CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

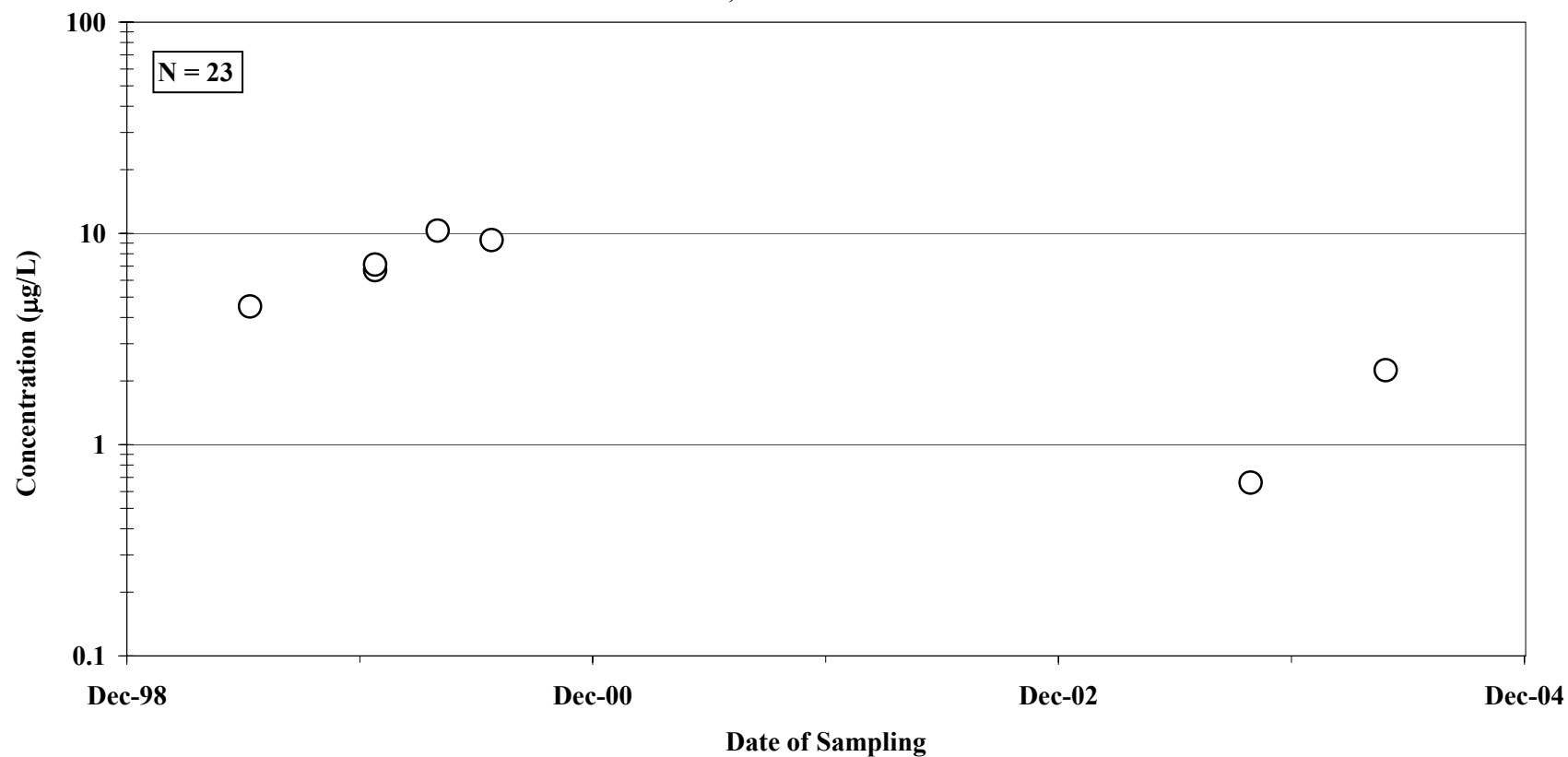


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-5**

**DISSOLVED ANTIMONY CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

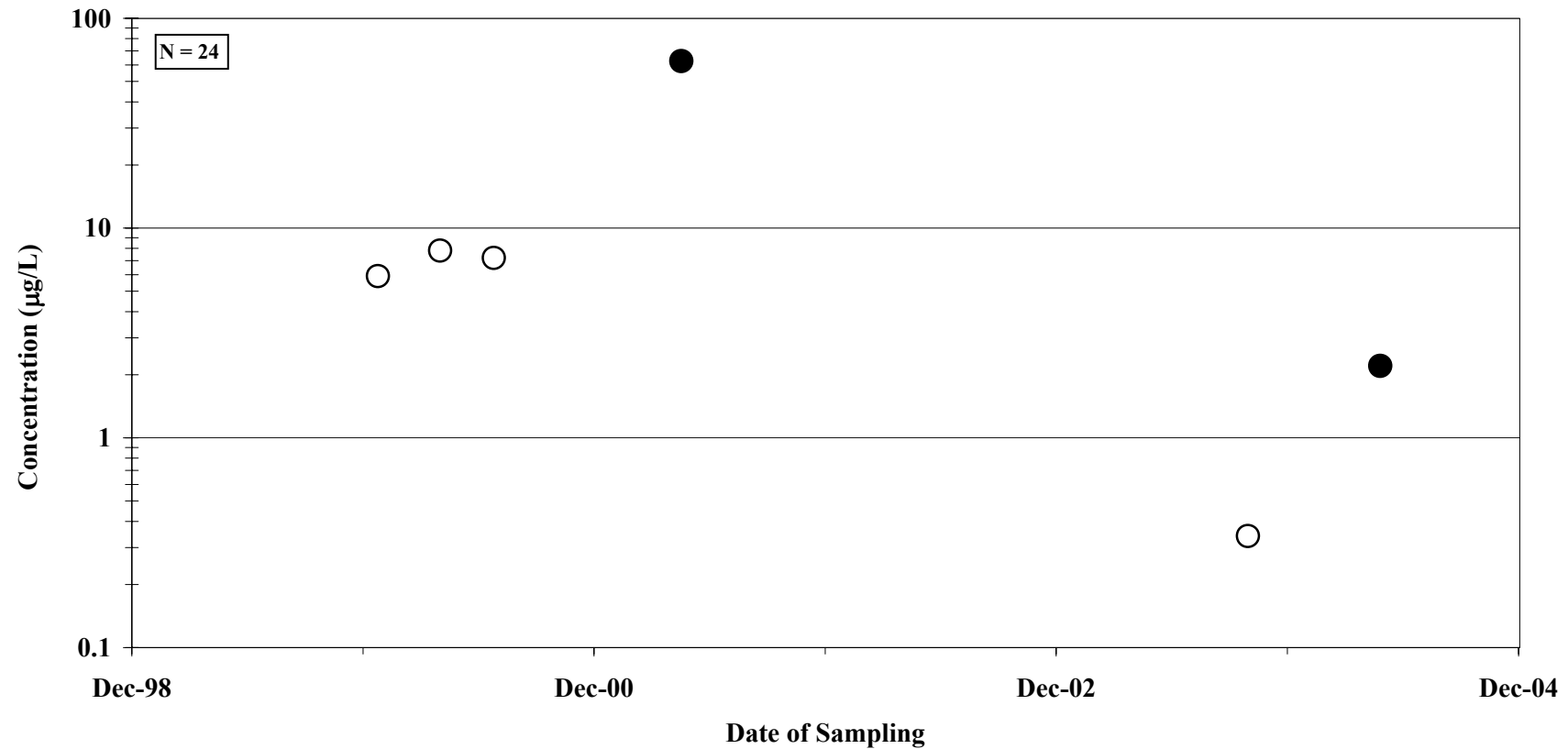


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-6**

**DISSOLVED ANTIMONY CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

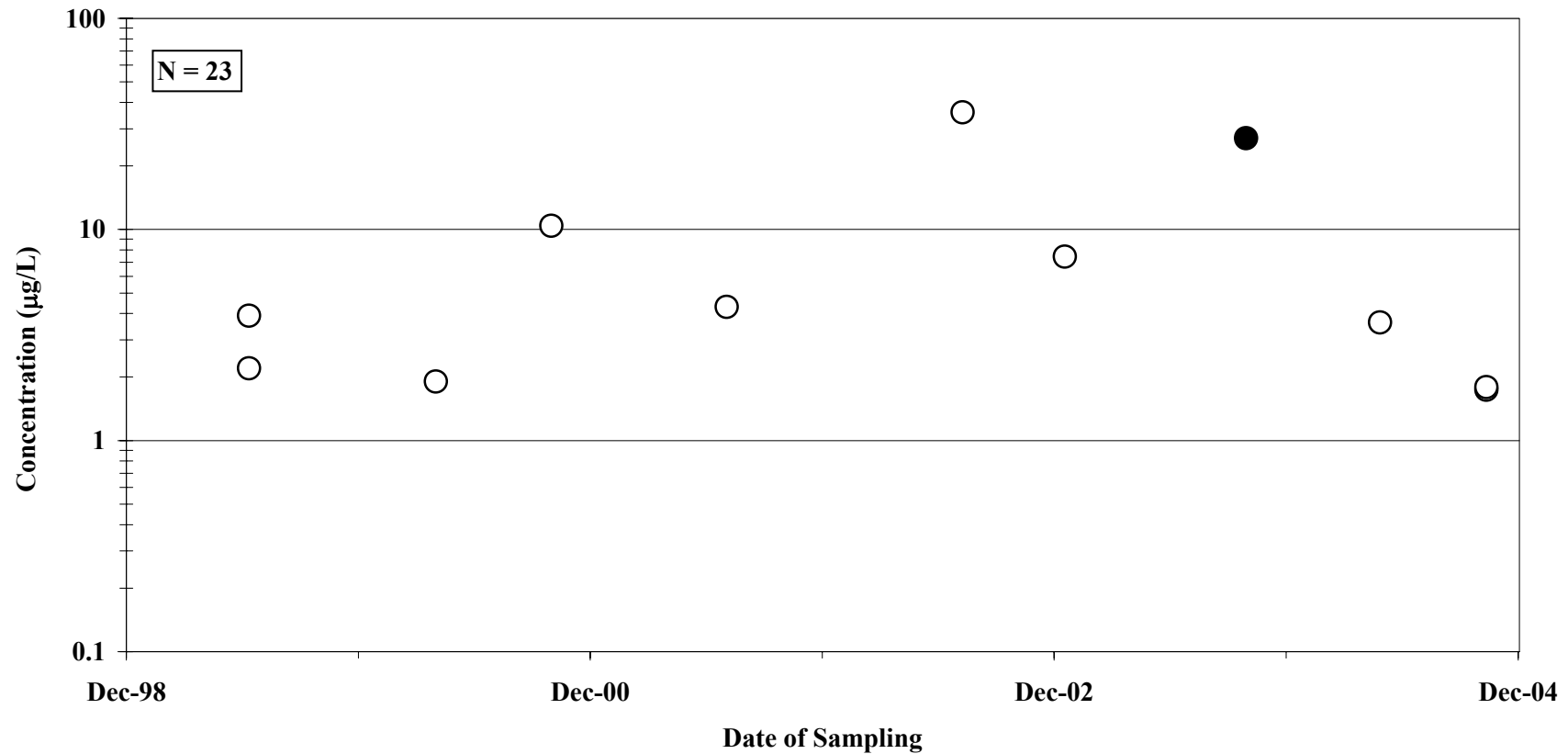


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-7**

**DISSOLVED ARSENIC CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



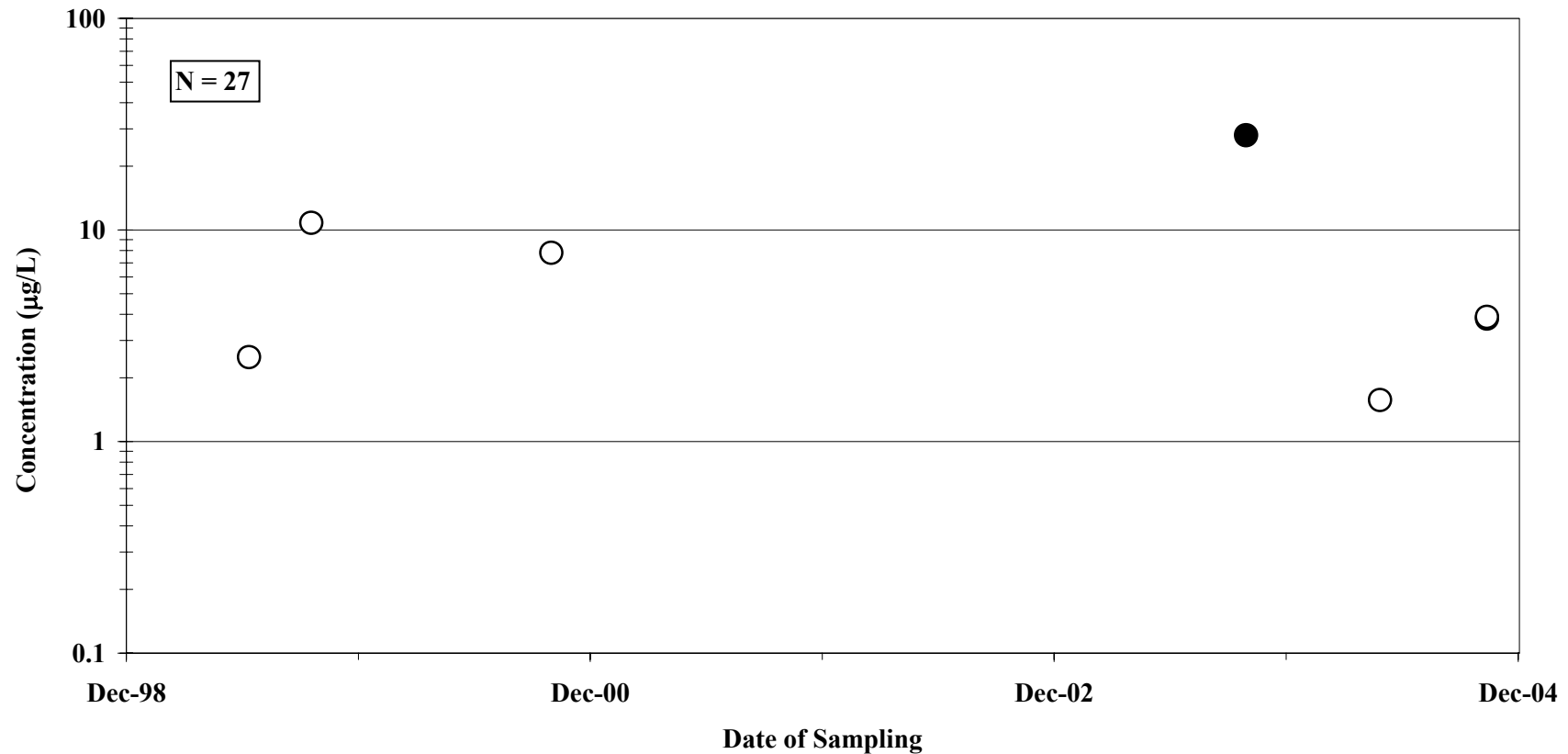
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-8**

**DISSOLVED ARSENIC CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

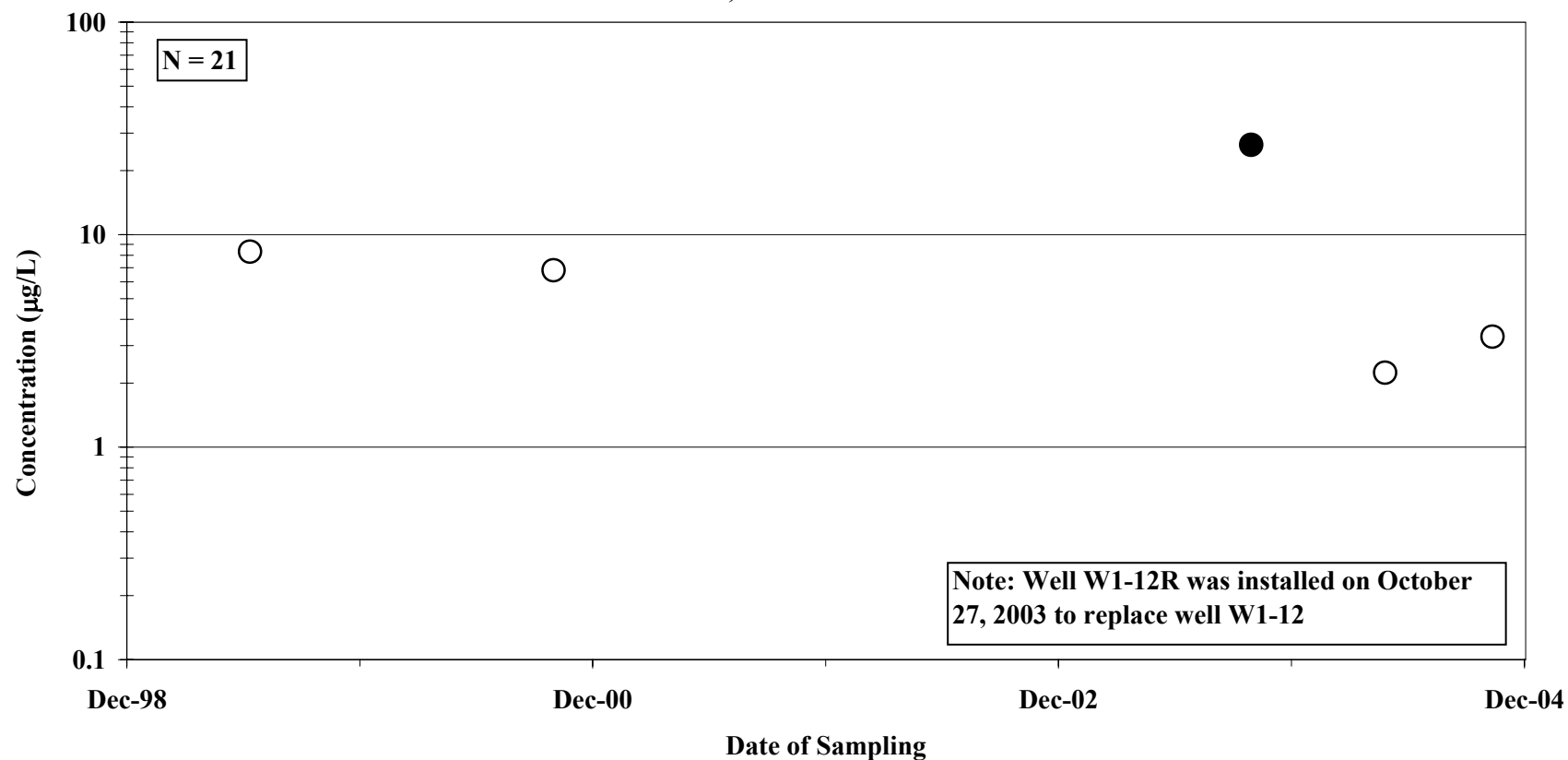


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-9**

**DISSOLVED ARSENIC CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

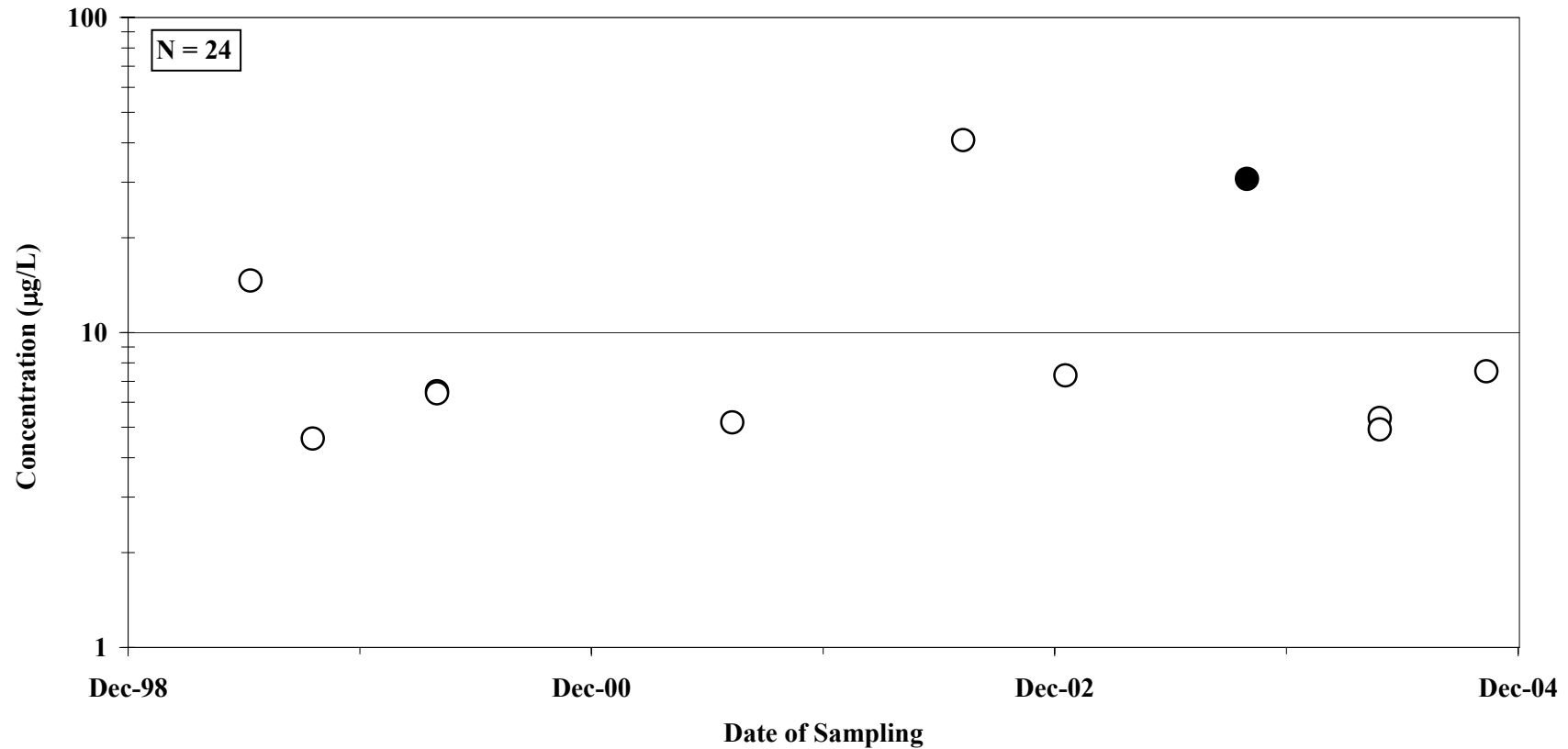


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-10**

**DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

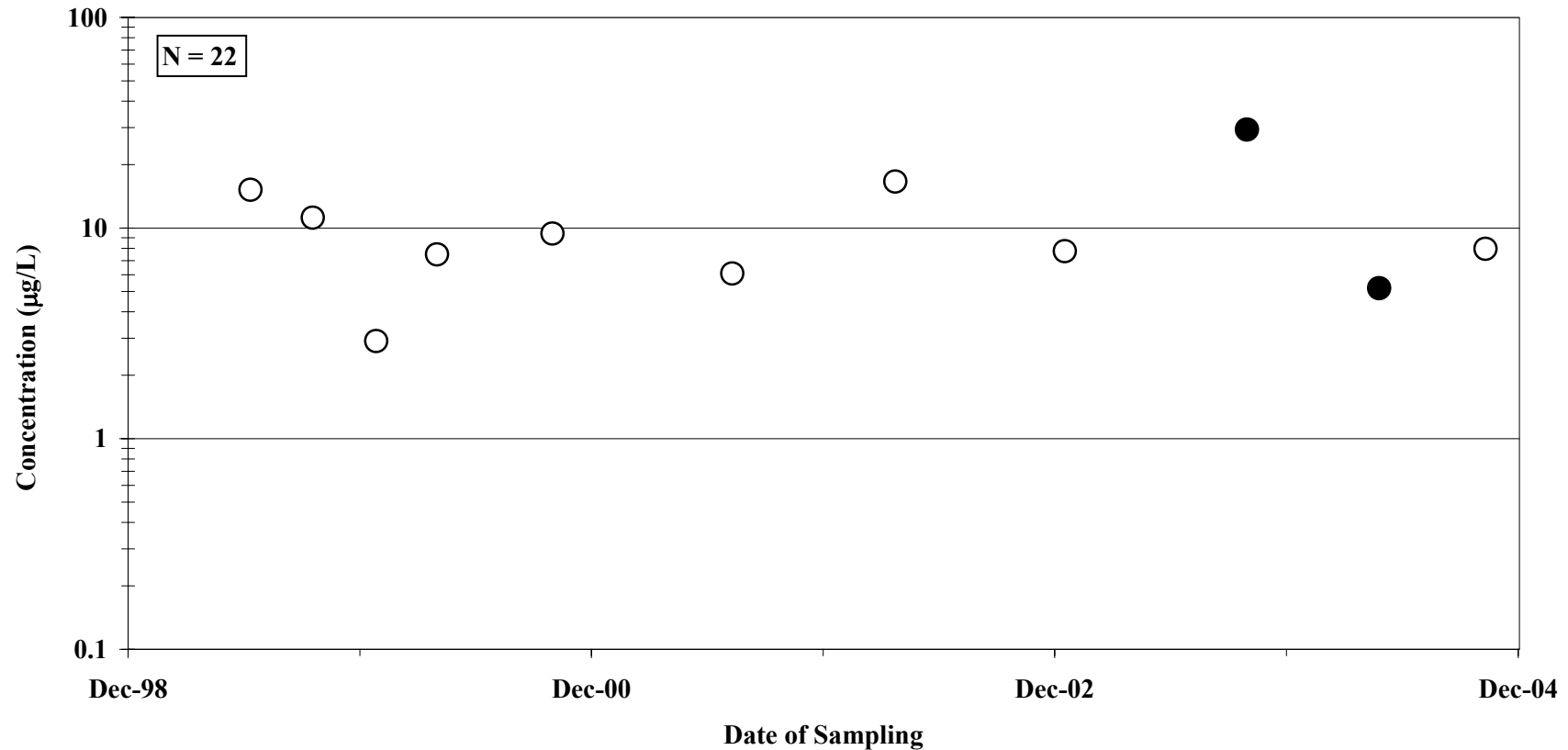


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-11**

**DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

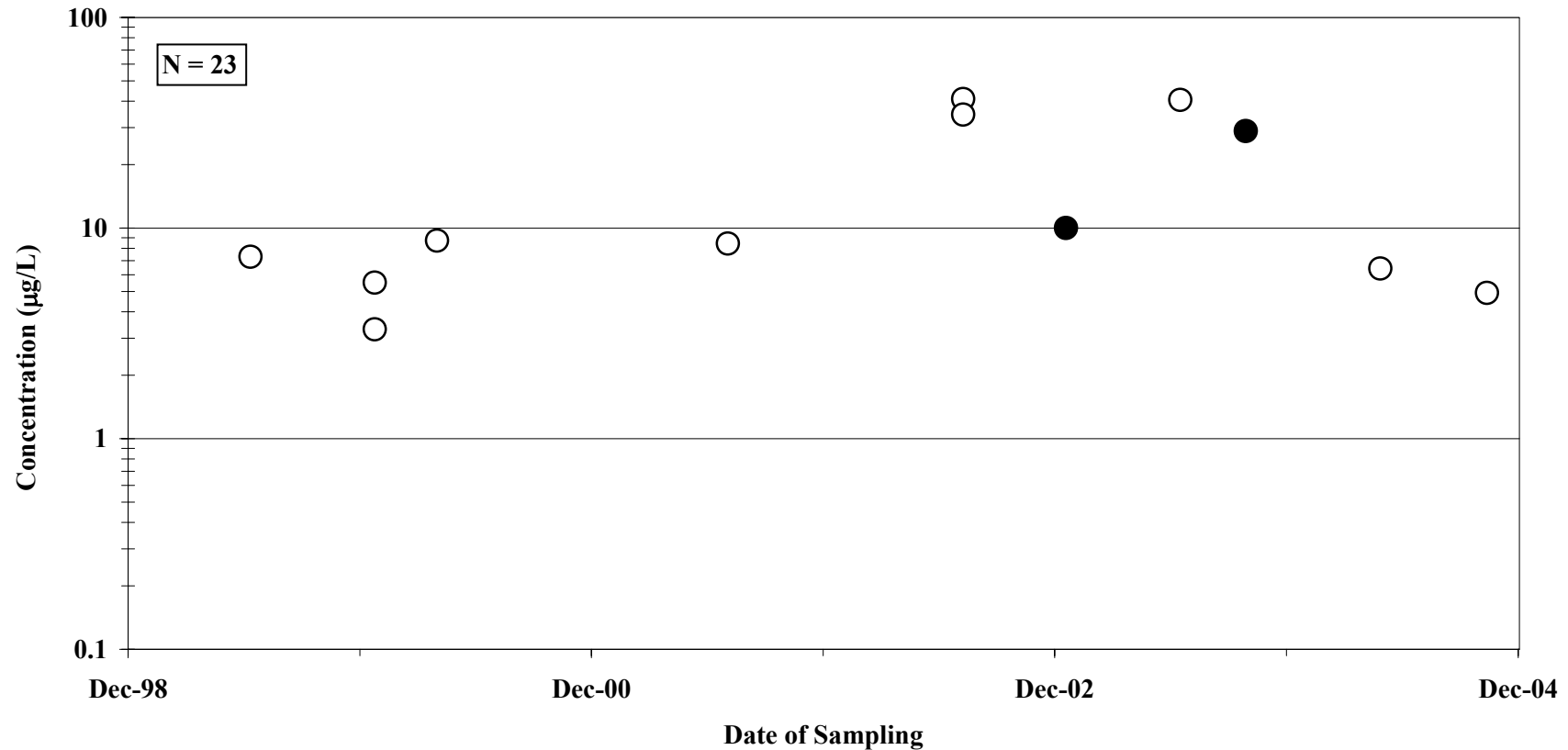


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-12**

**DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

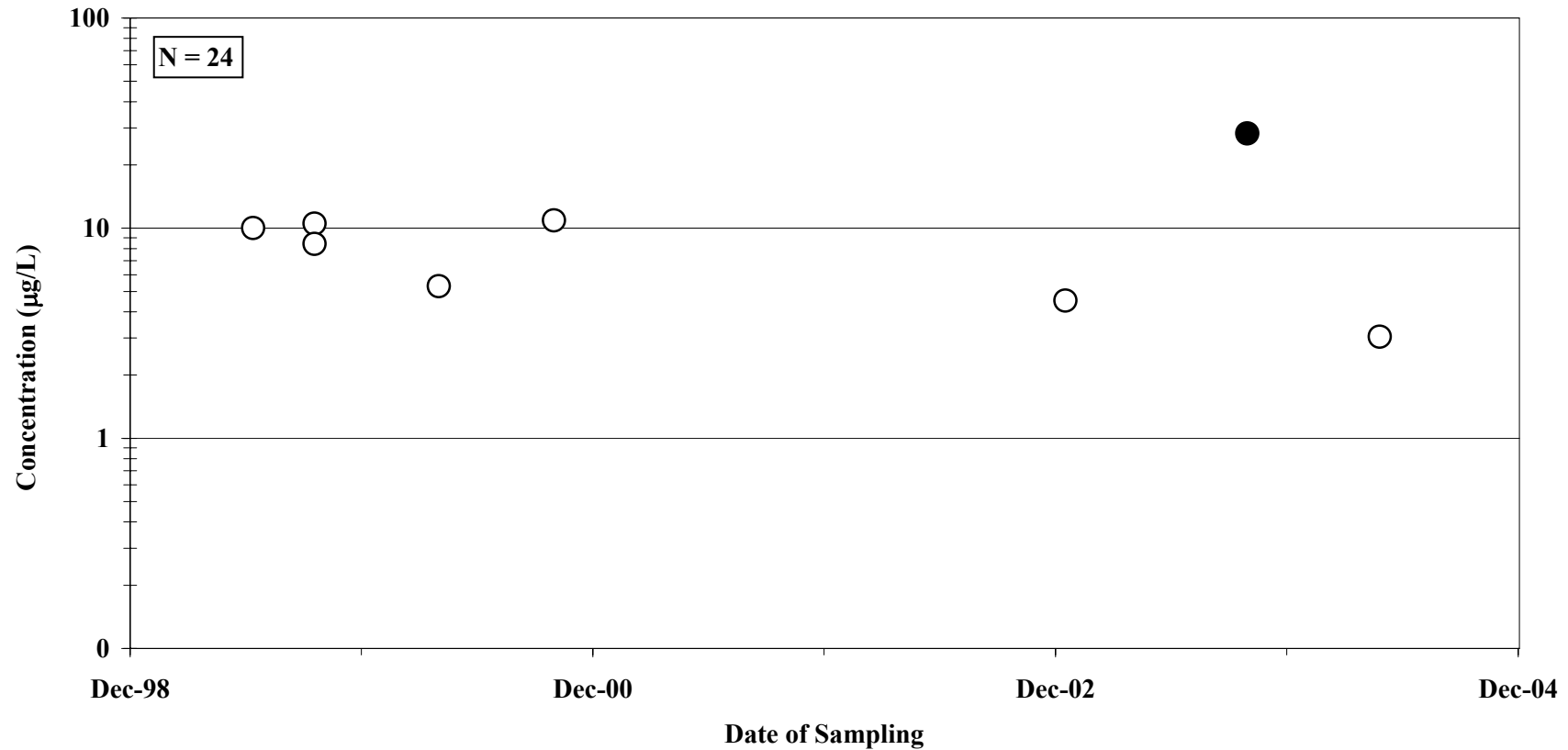


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-13**

**DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

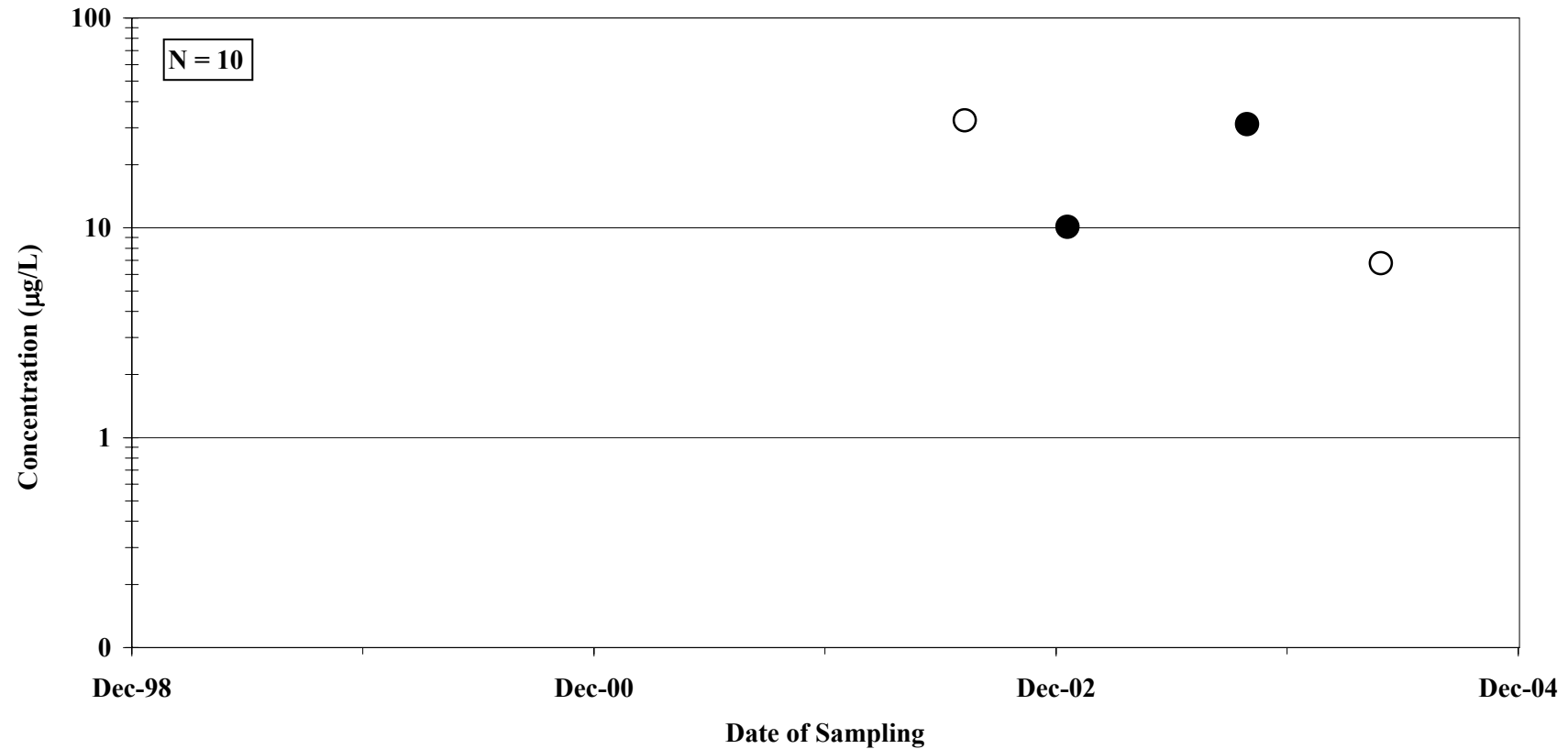


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-14**

**DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

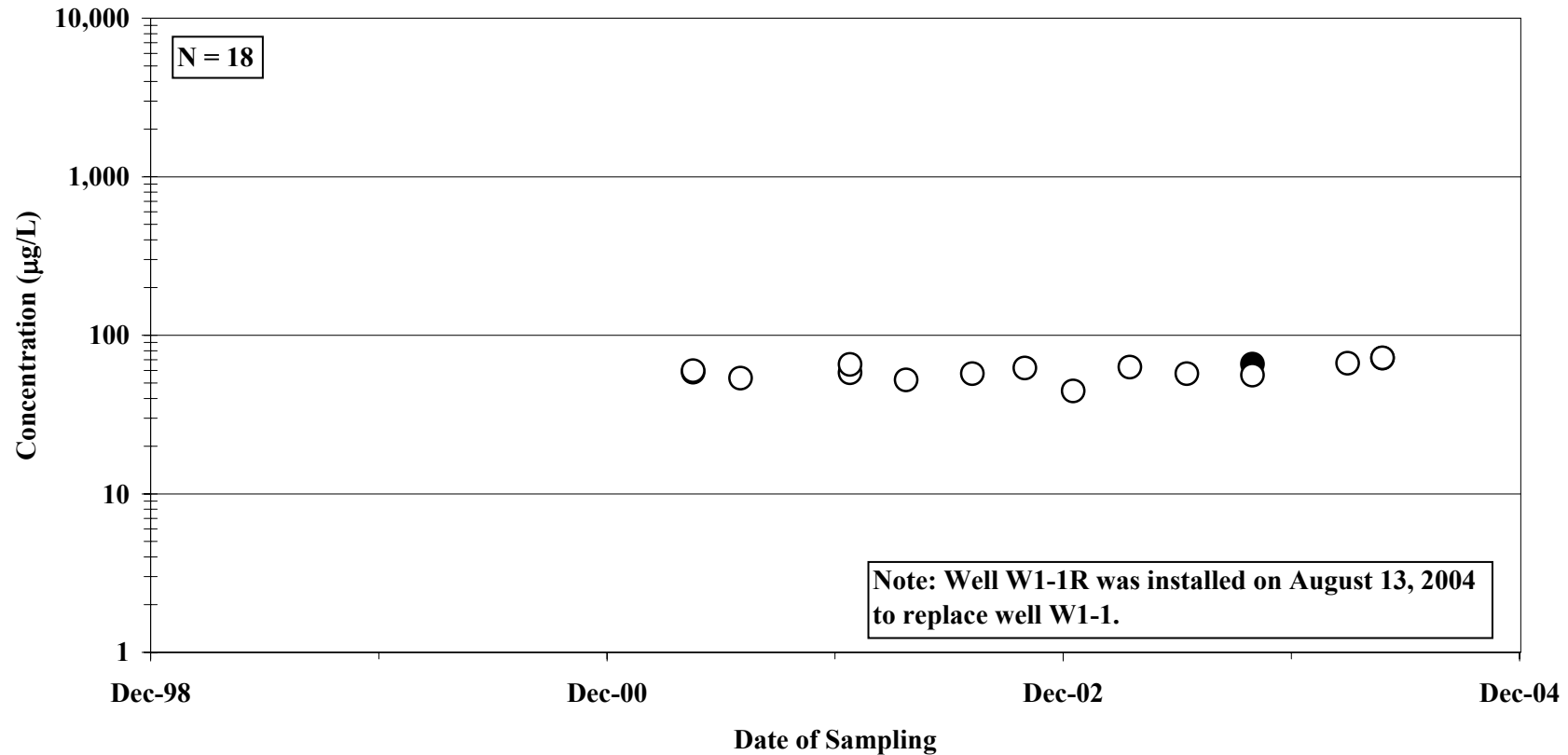


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-15**

**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

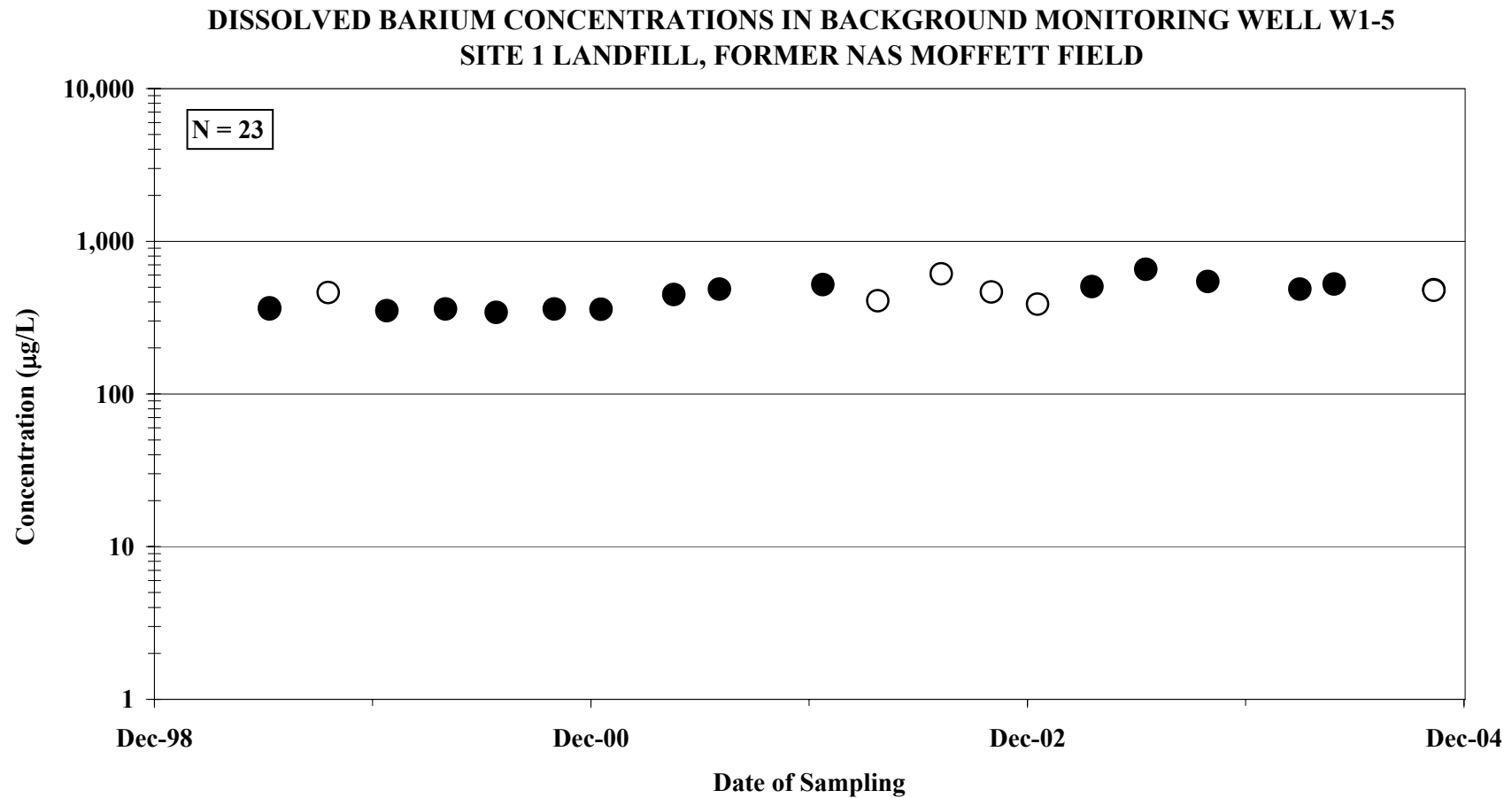


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-16**

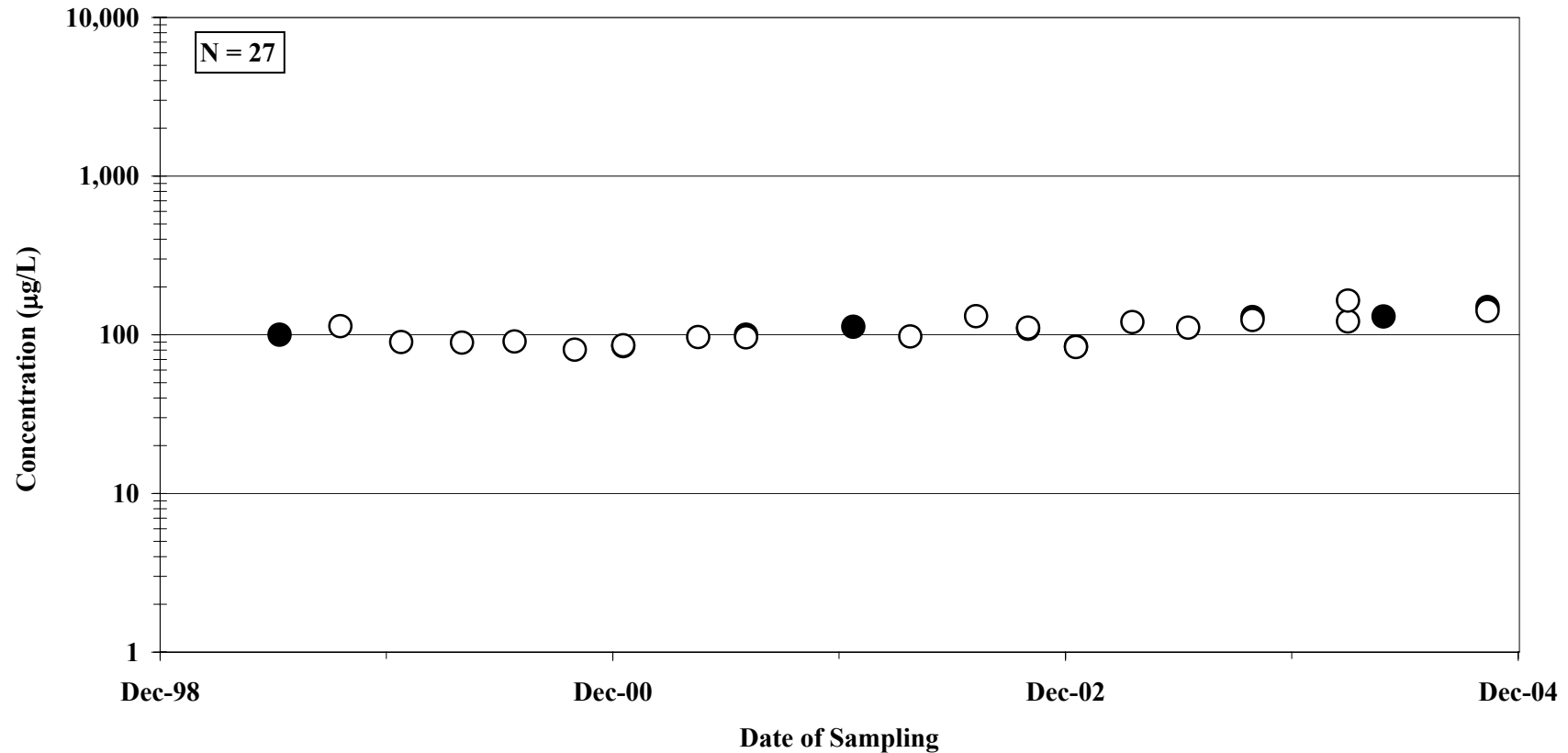


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-17**

**DISSOLVED BARIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

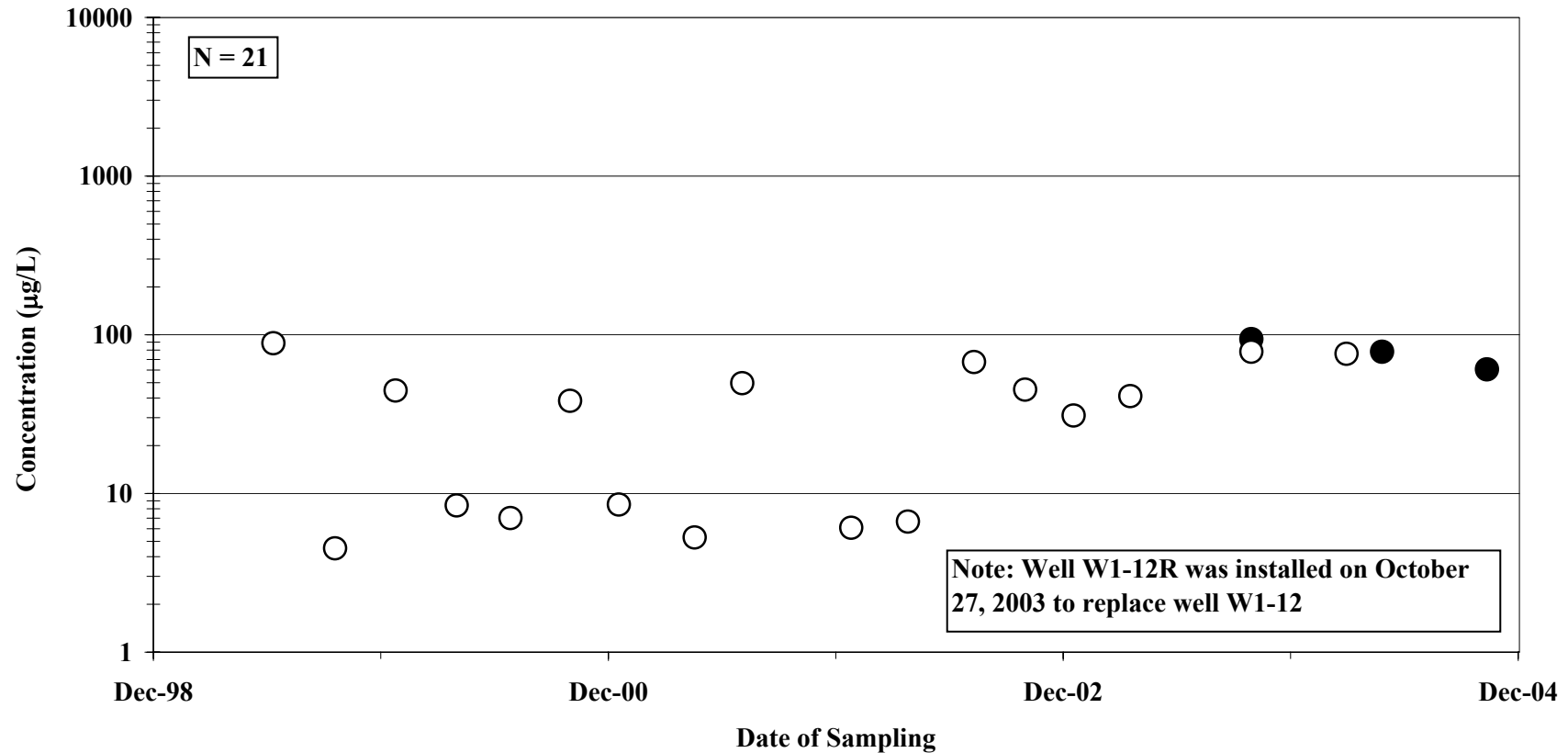


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-18**

**DISSOLVED BARIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

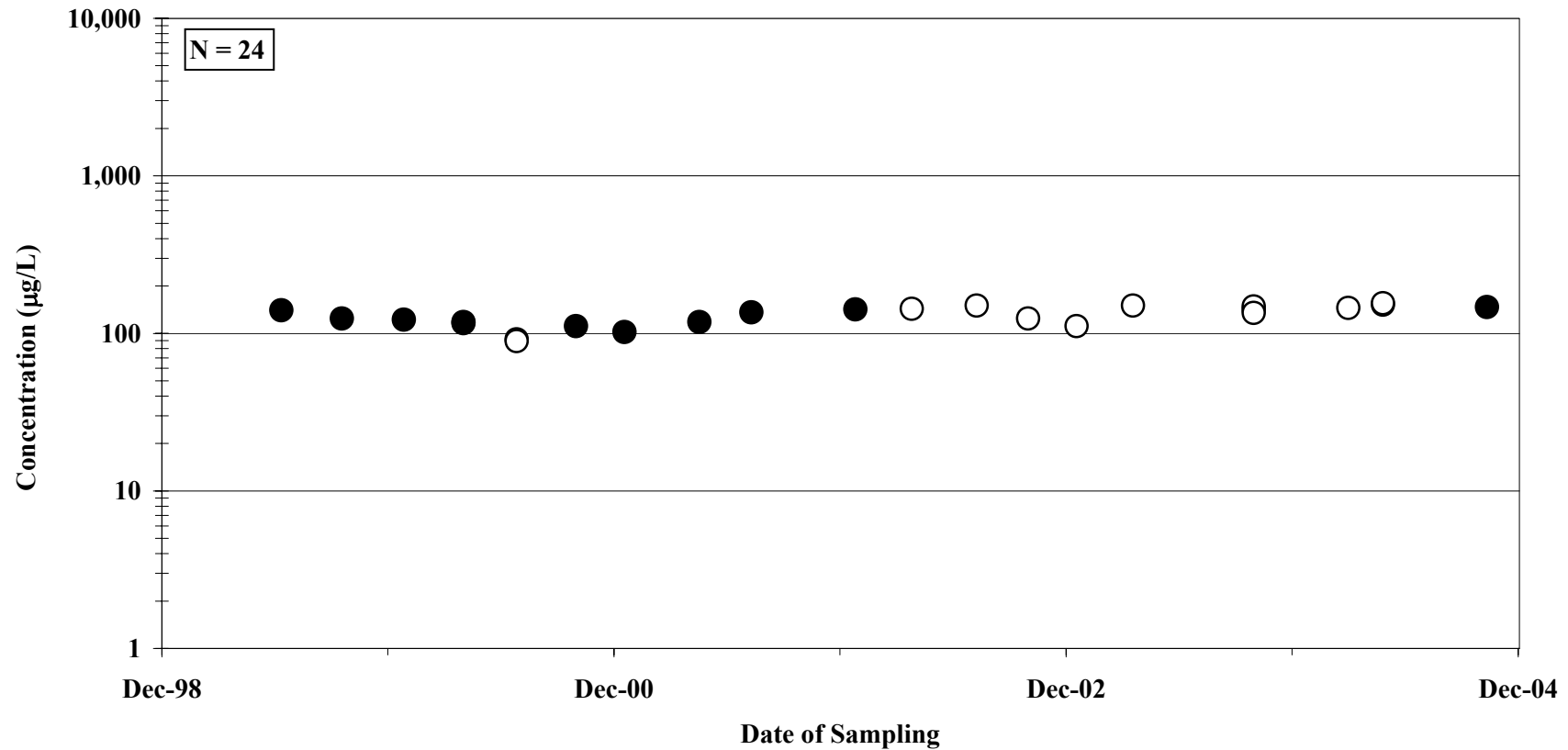


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-19**

**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRADIANT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

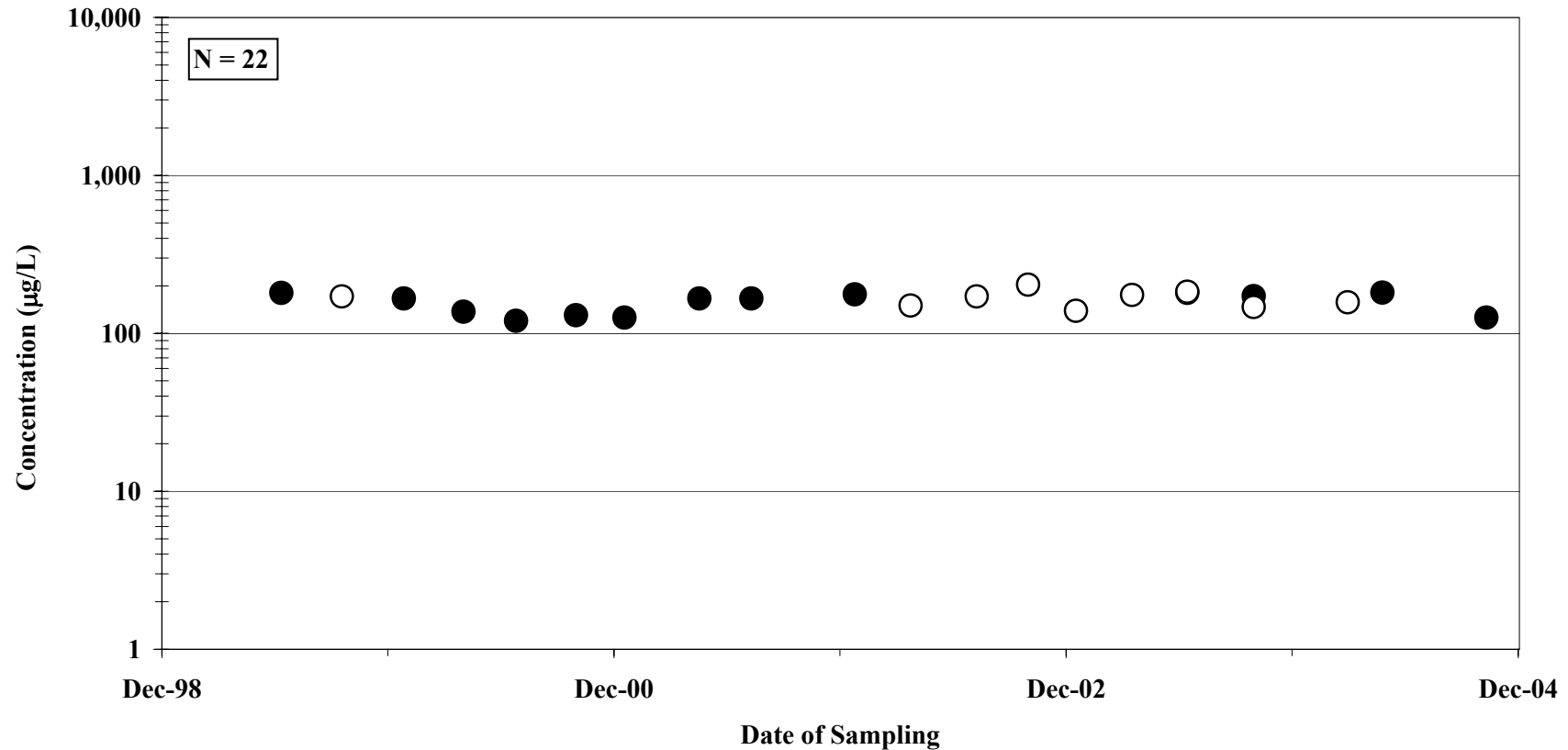


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-20**

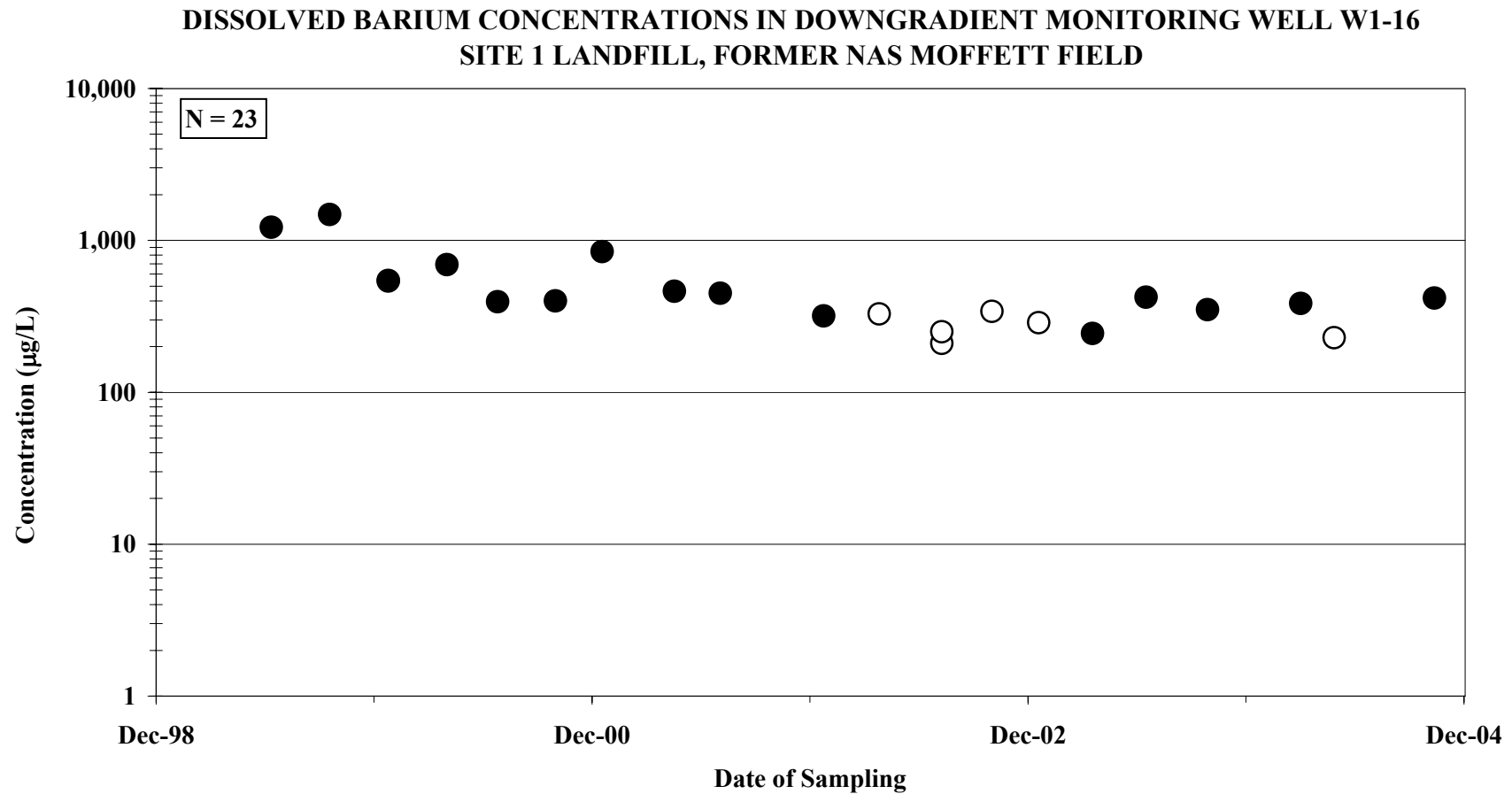
**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

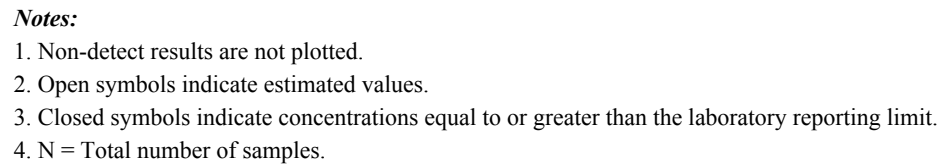
**FIGURE E-21**



**Notes:**

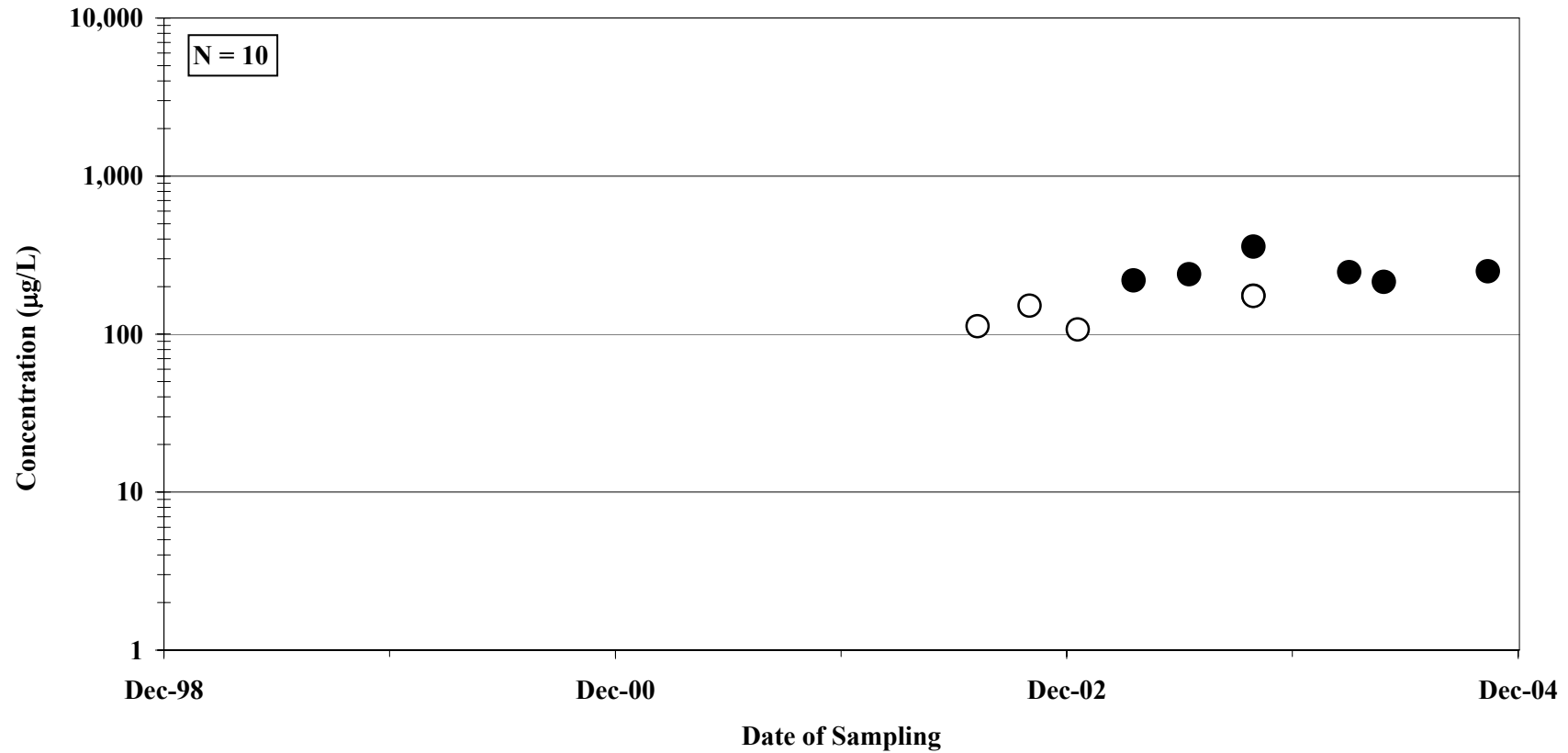
1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



**FIGURE E-23**

**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



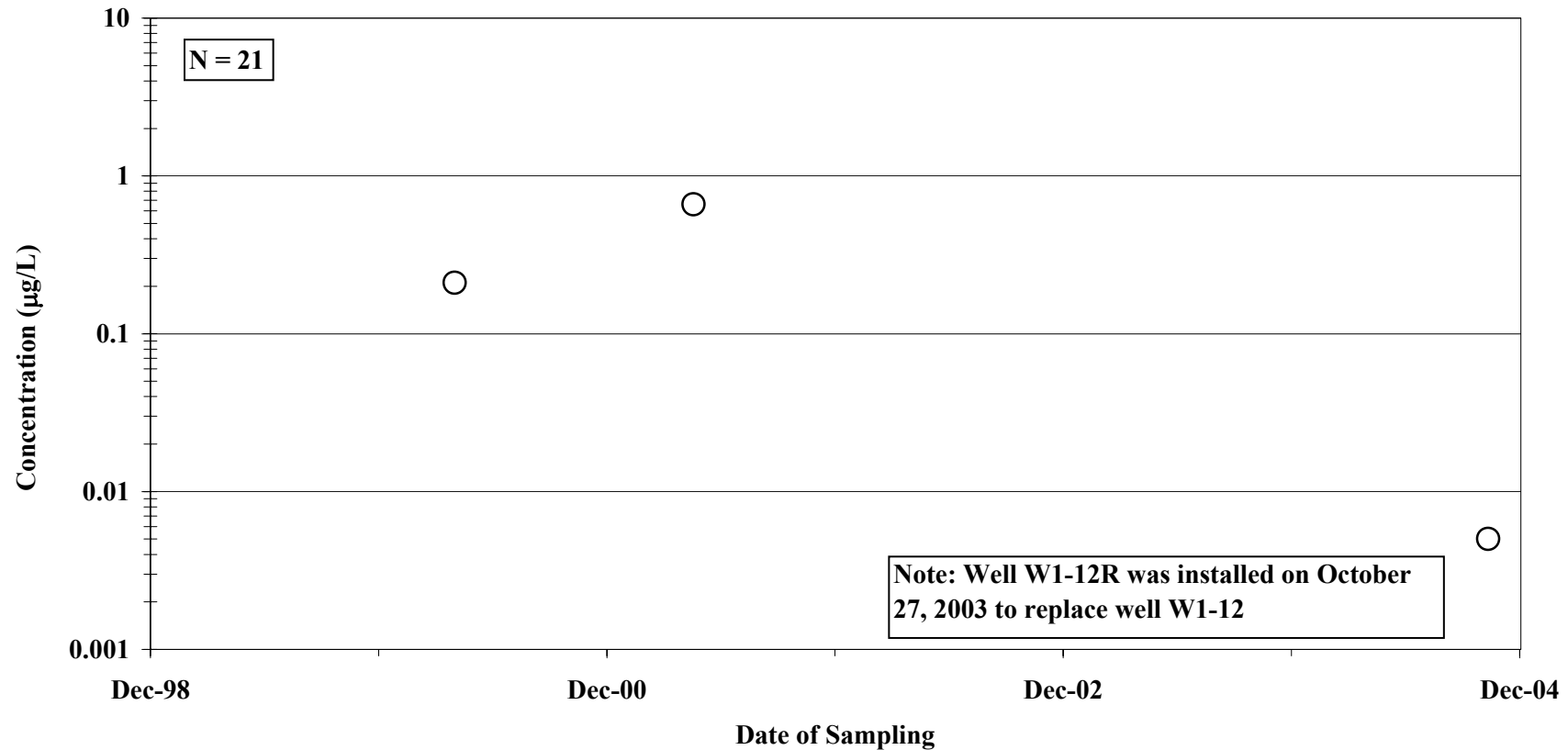
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-24**

**DISSOLVED BERYLLIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

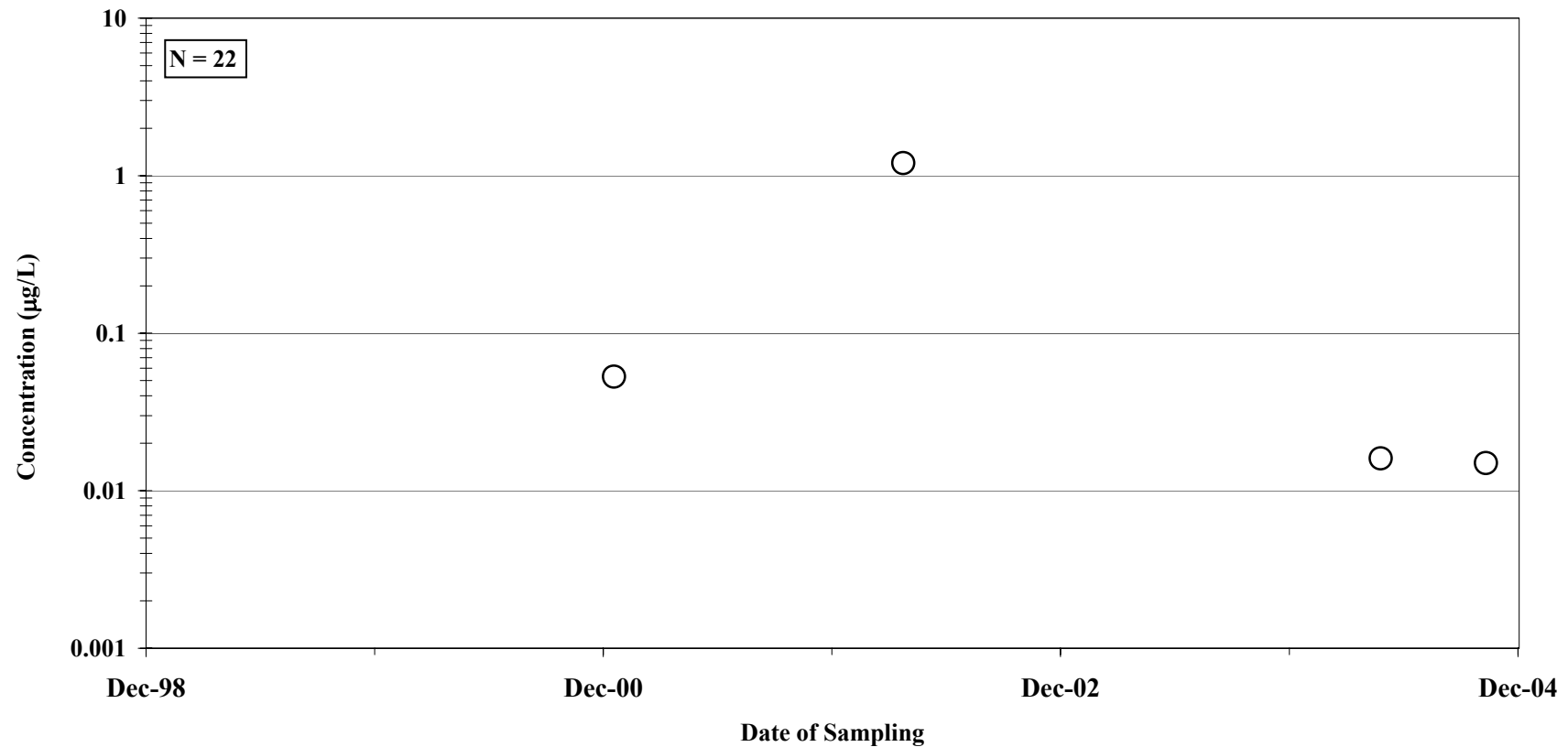


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-25**

**DISSOLVED BERYLLIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

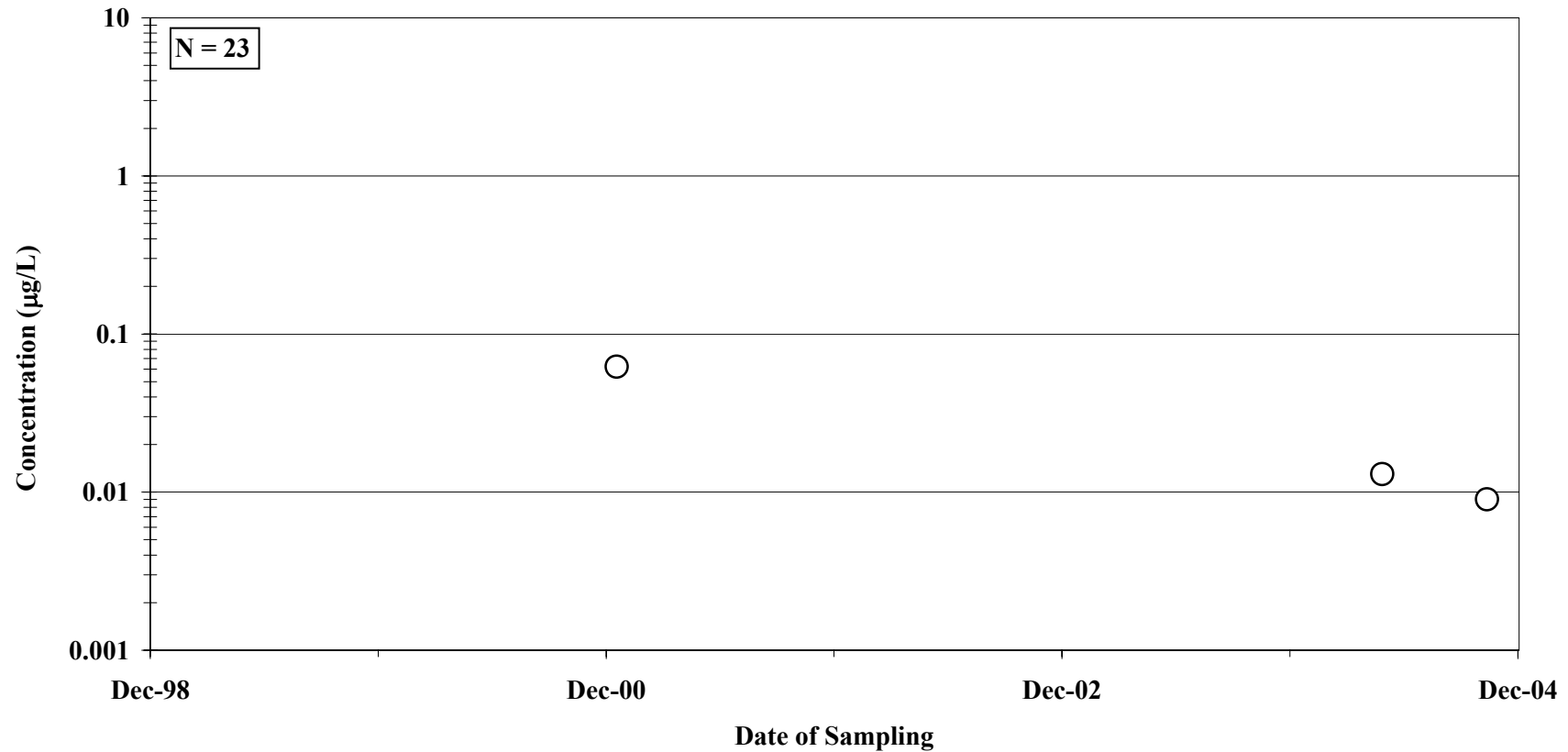


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-26**

**DISSOLVED BERYLLIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

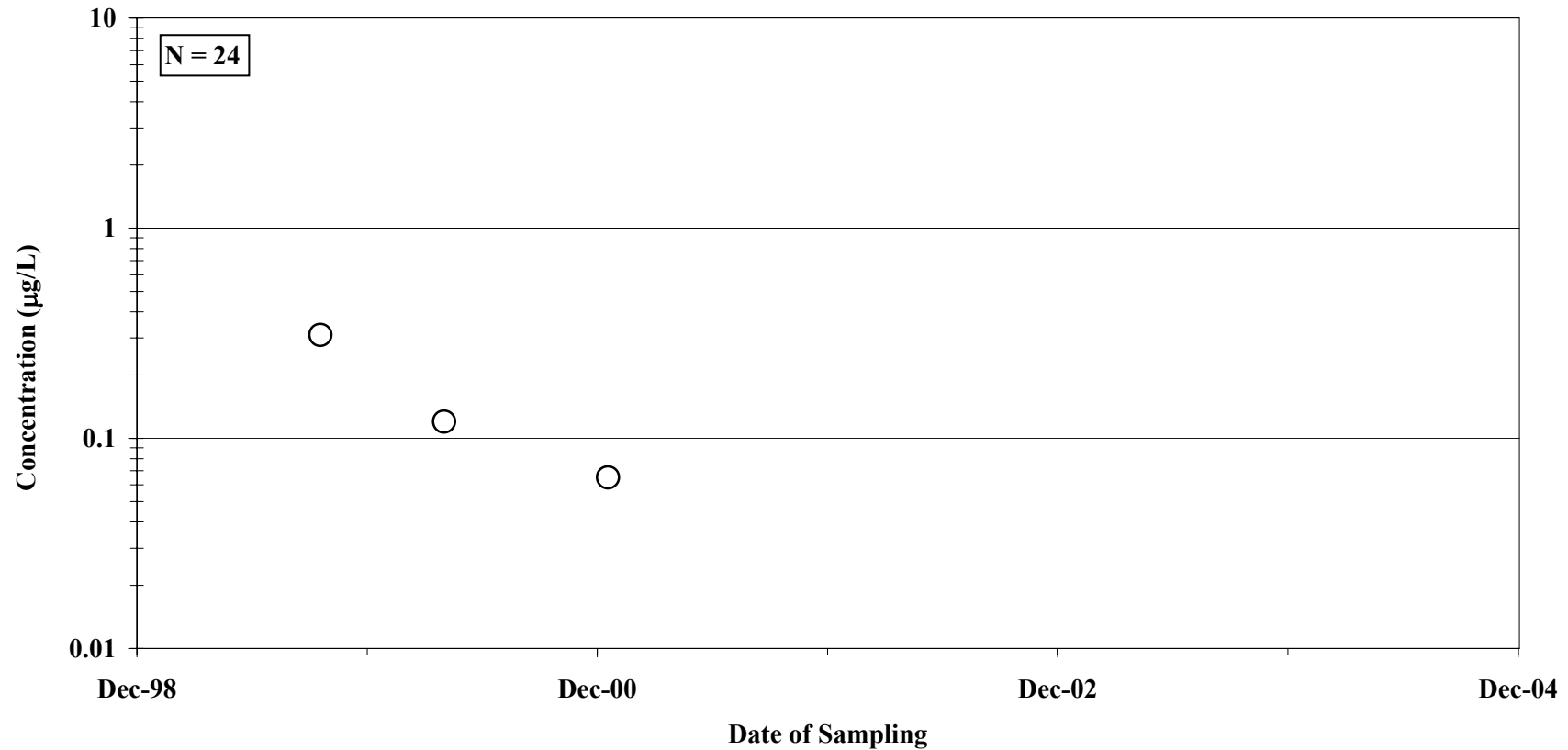


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-27**

**DISSOLVED BERYLLIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

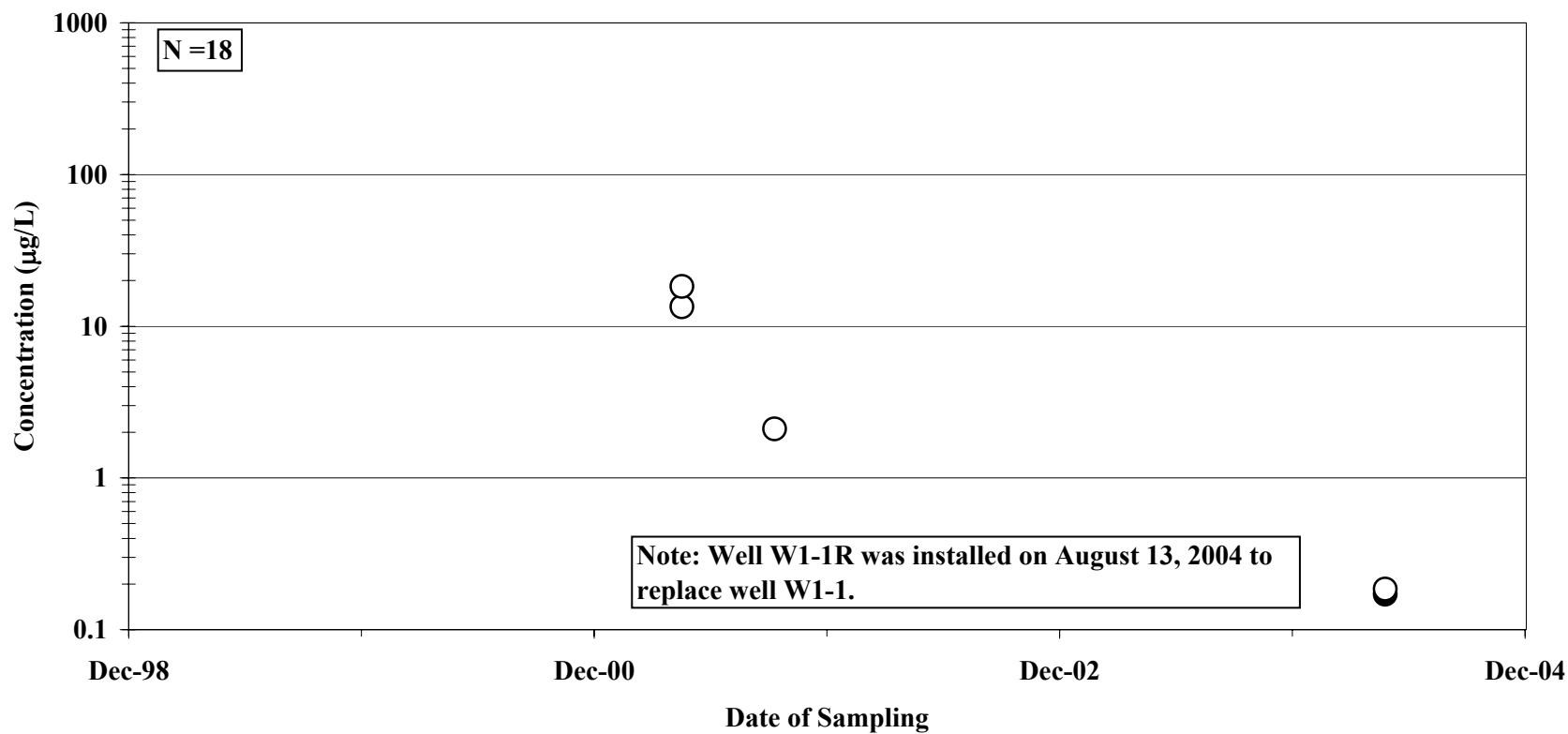


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-28**

**DISSOLVED CADMIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

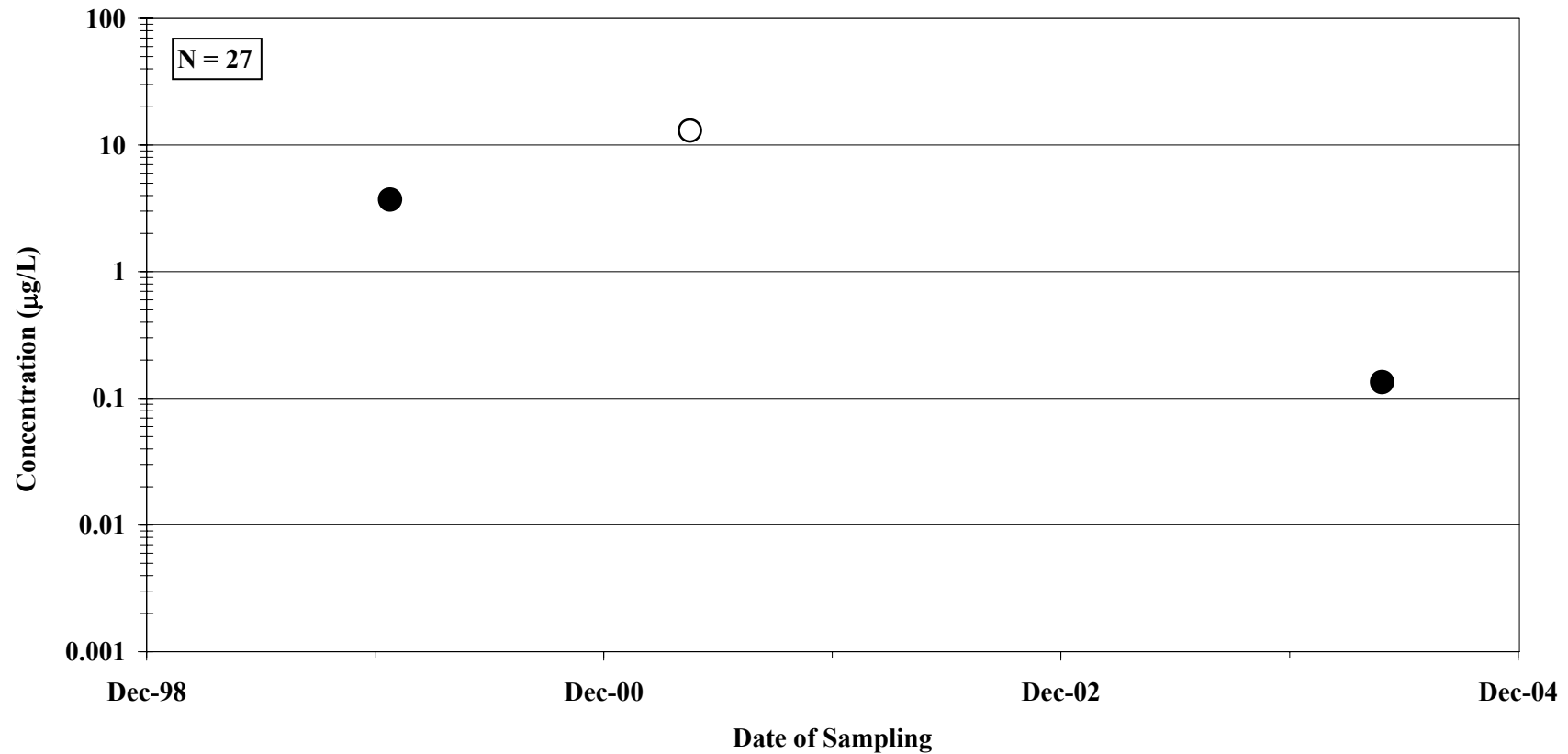


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-29**

**DISSOLVED CADMIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

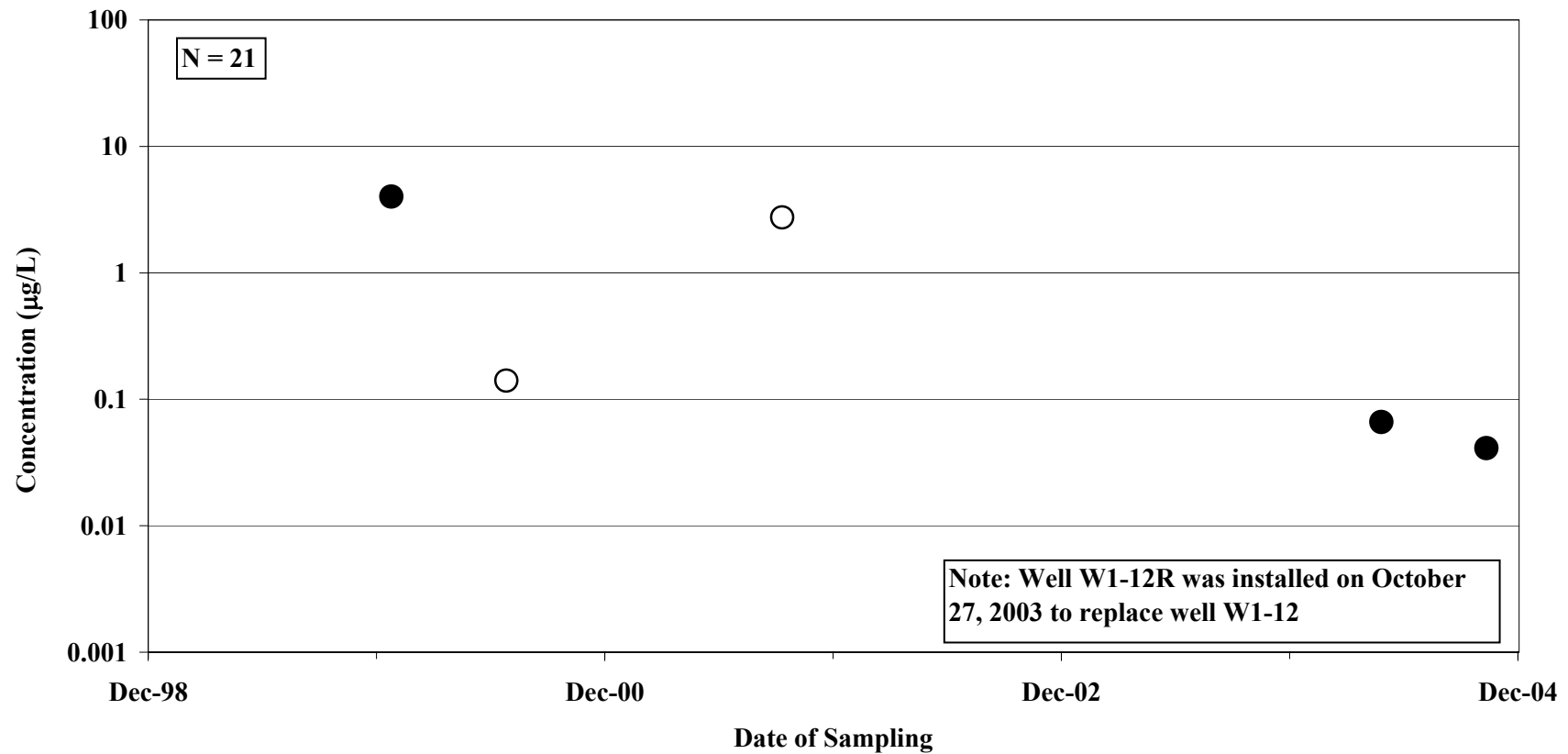


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-30**

**DISSOLVED CADMIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

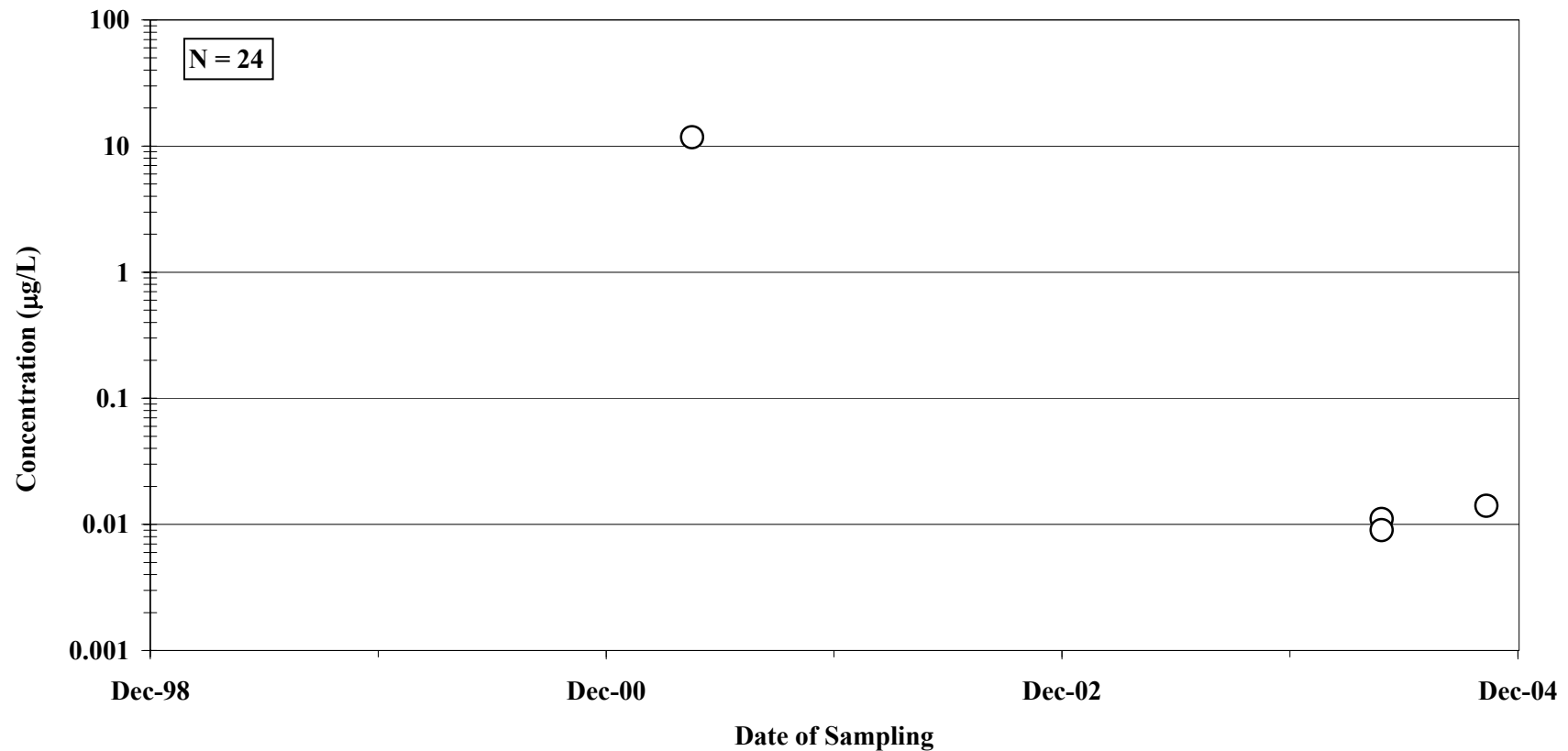


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-31**

**DISSOLVED CADMIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



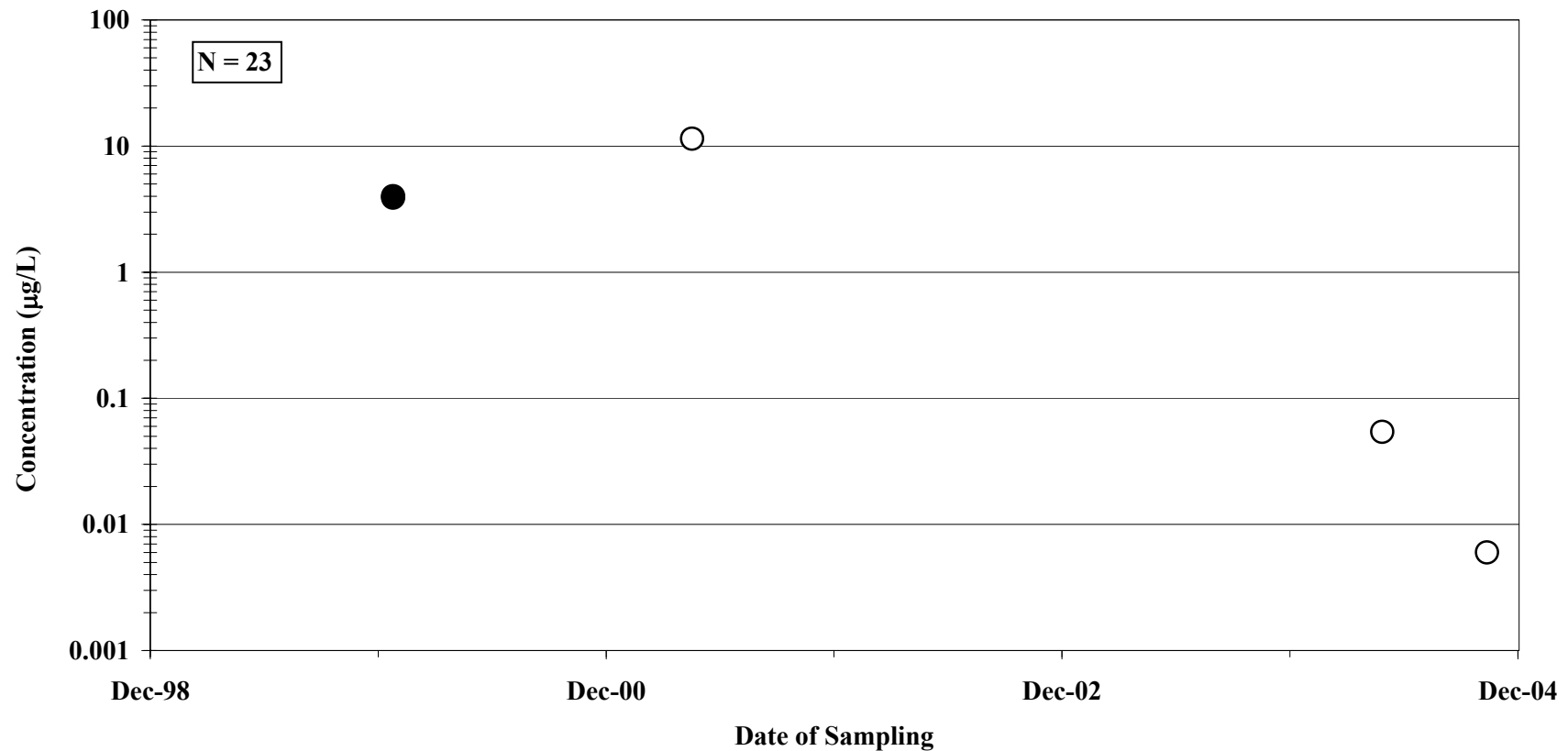
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-32**

**DISSOLVED CADMIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

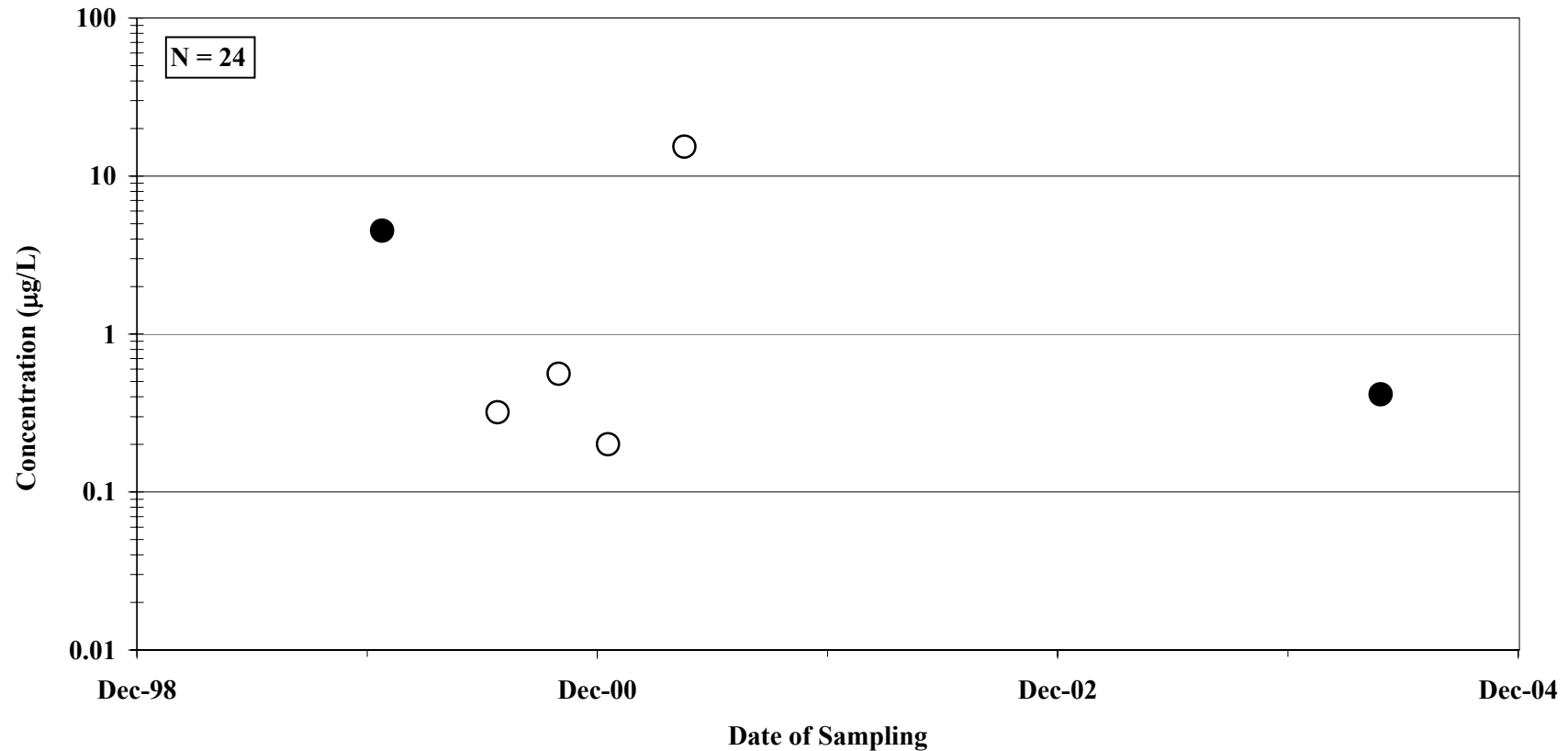


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-33**

**DISSOLVED CADMIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

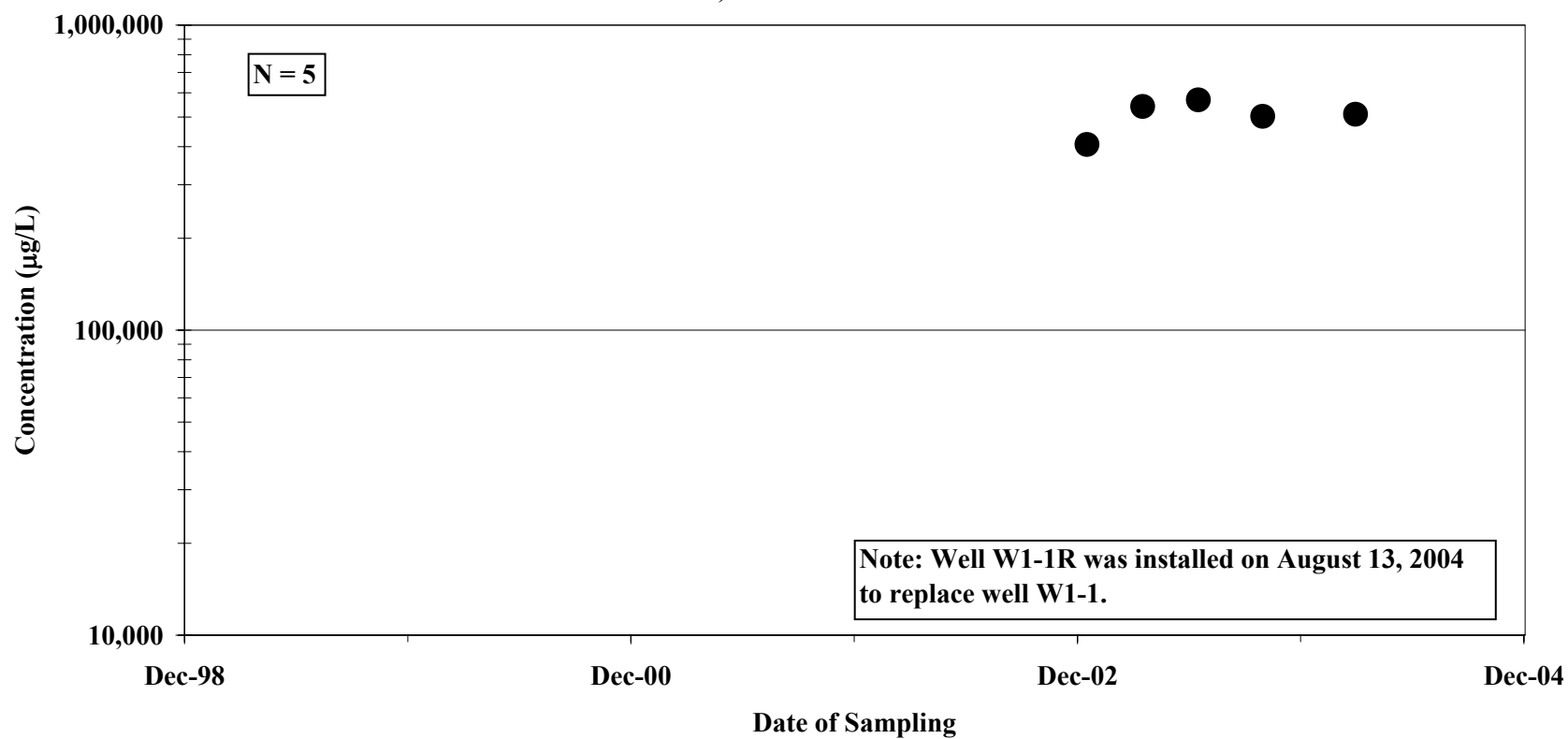


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-34**

**DISSOLVED CALCIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

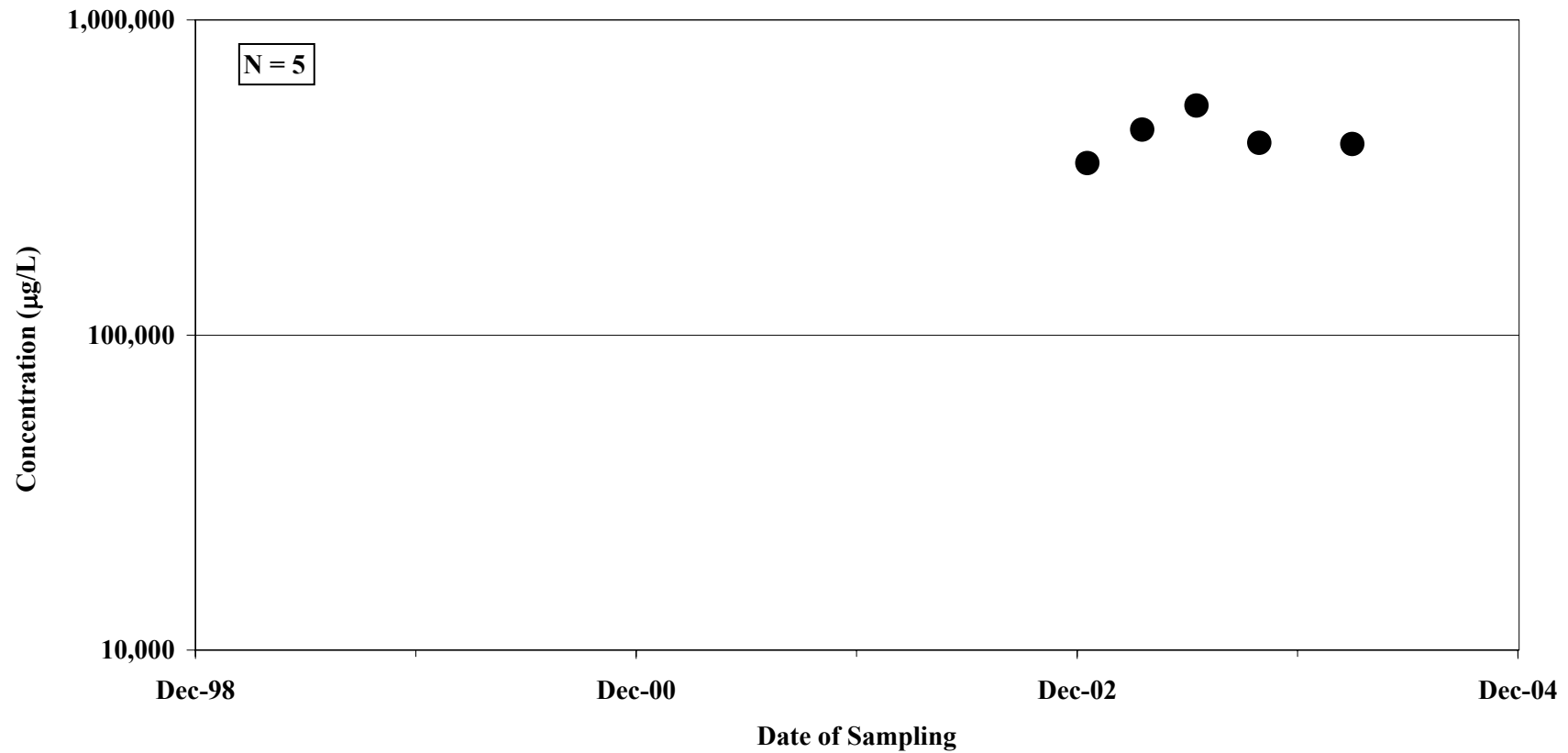


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-35**

**DISSOLVED CALCIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

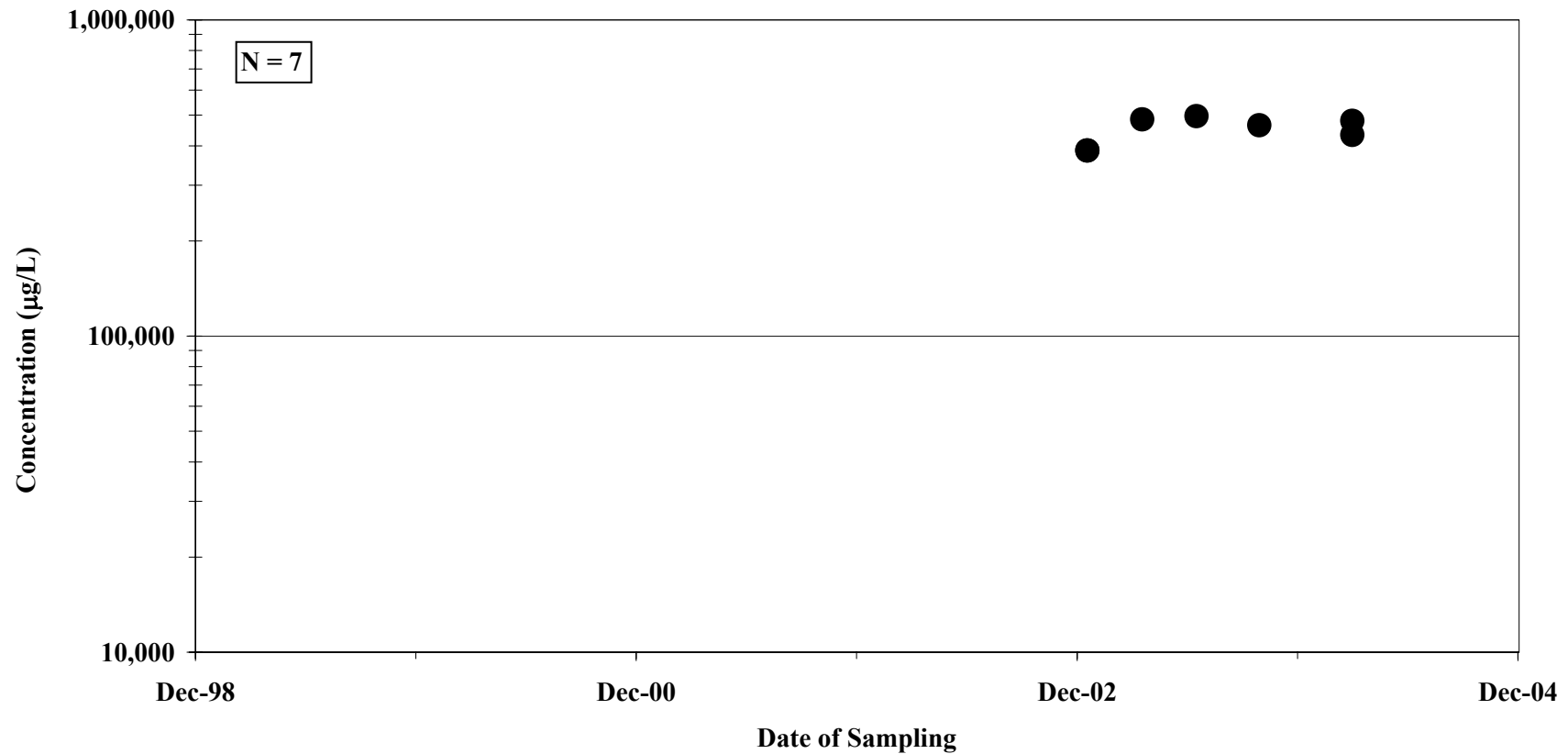


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-36**

**DISSOLVED CALCIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

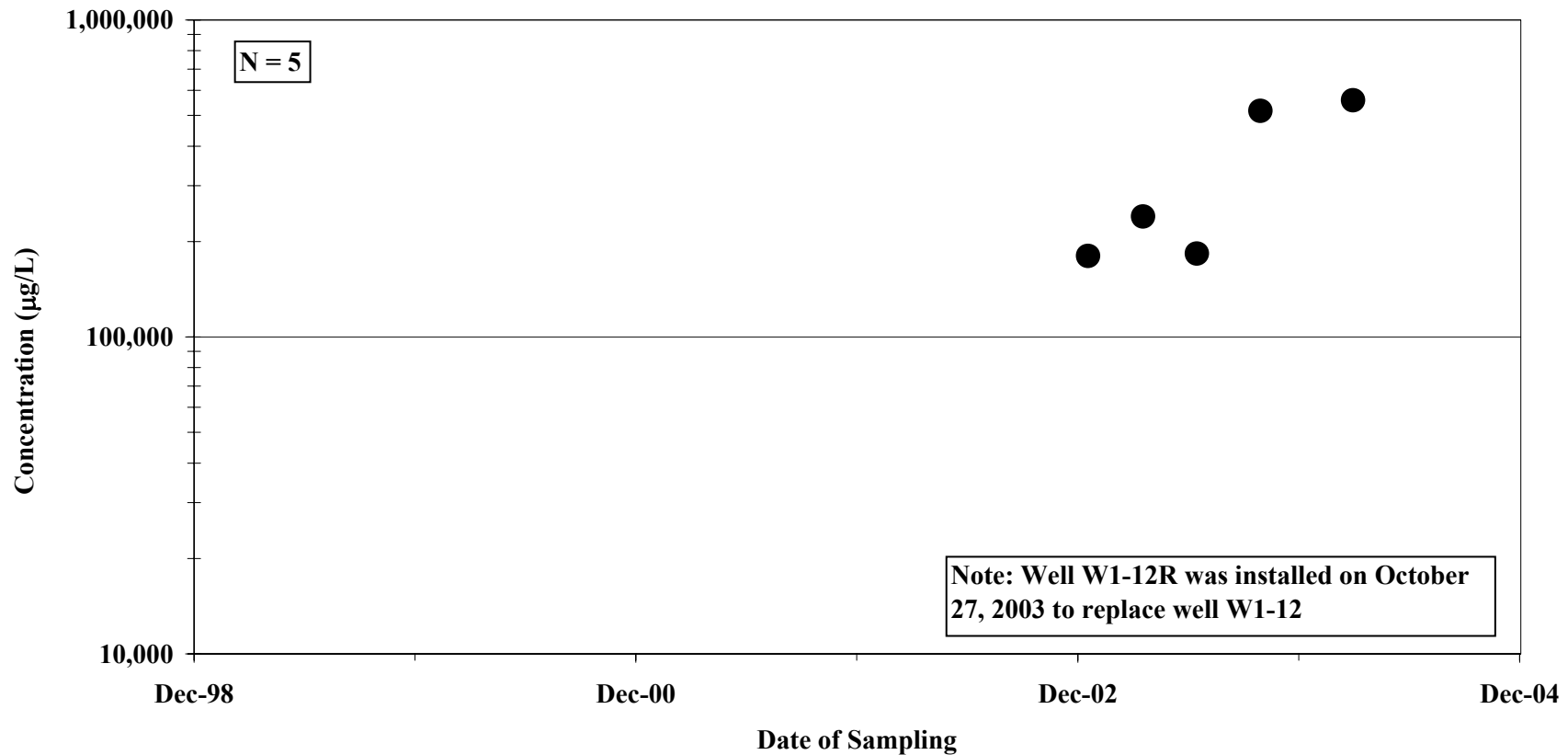


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-37**

**DISSOLVED CALCIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

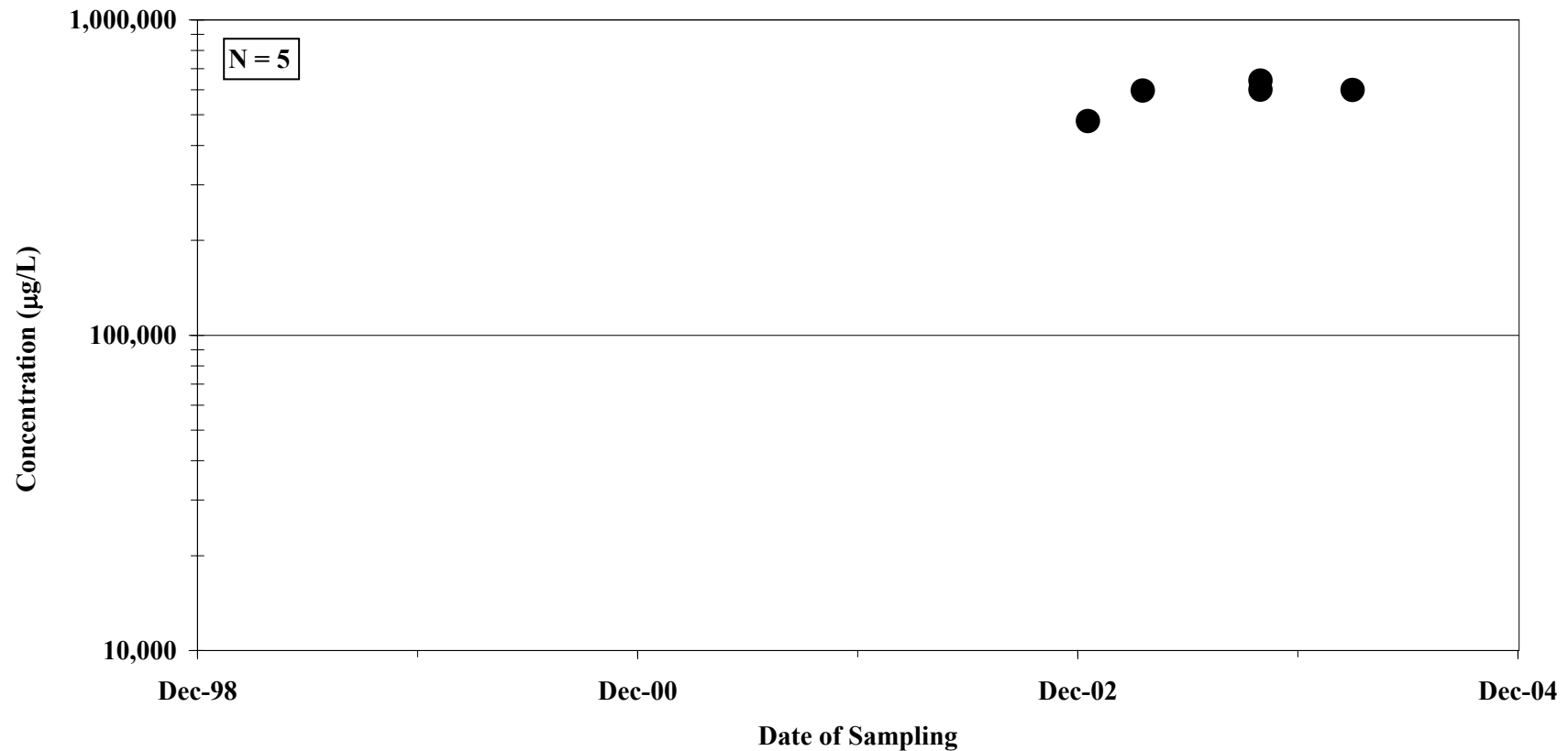


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-38**

**DISSOLVED CALCIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

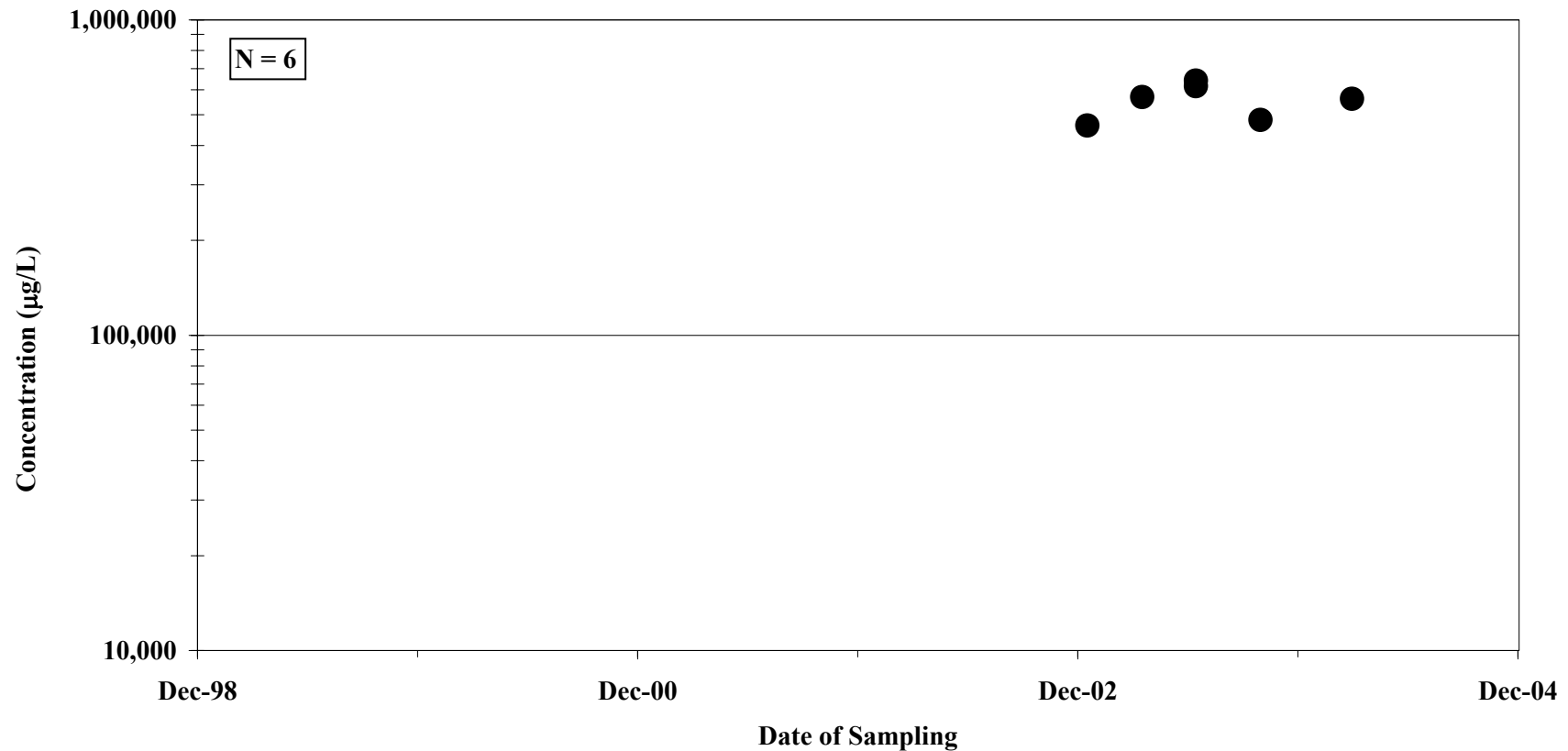


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-39**

**DISSOLVED CALCIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



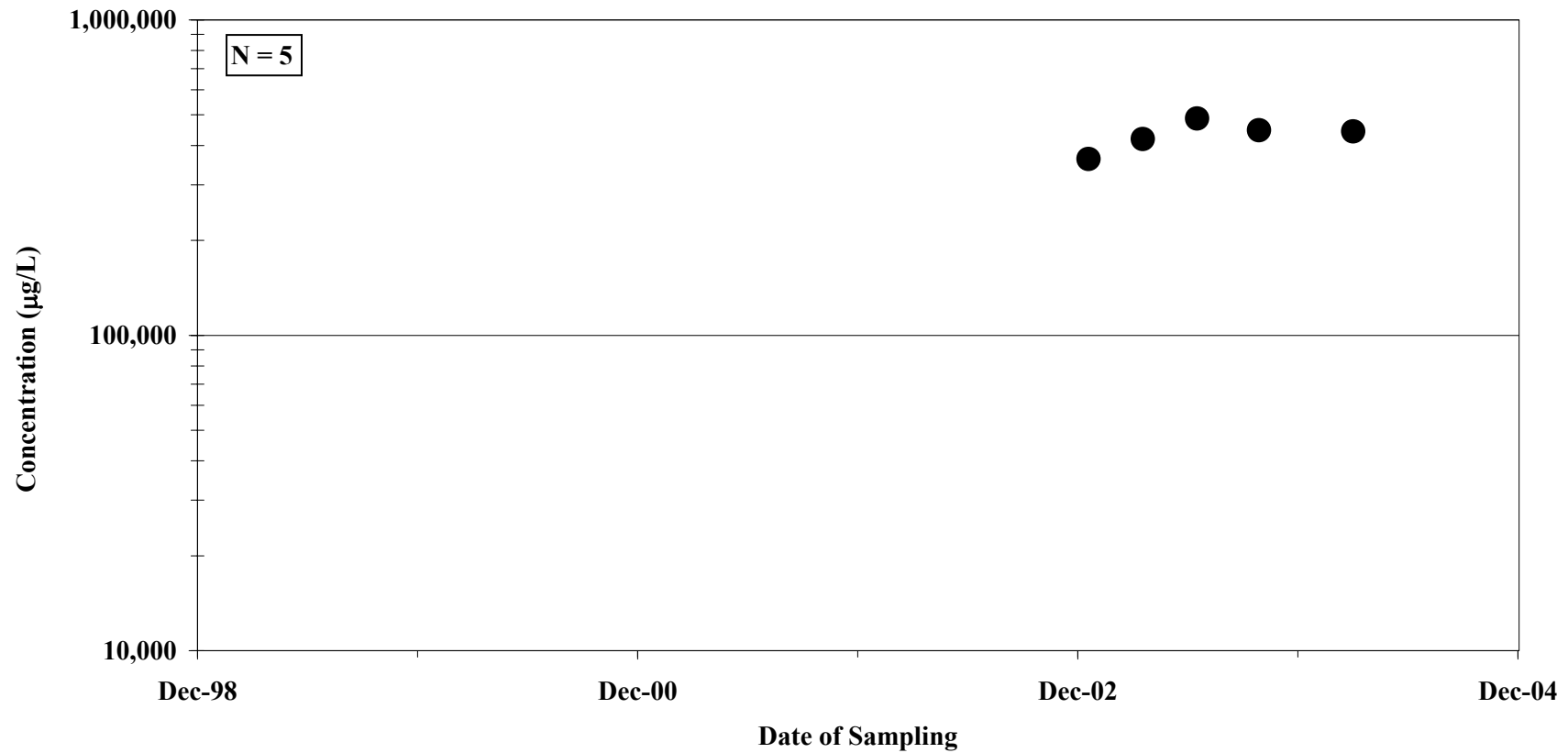
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-40**

**DISSOLVED CALCIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

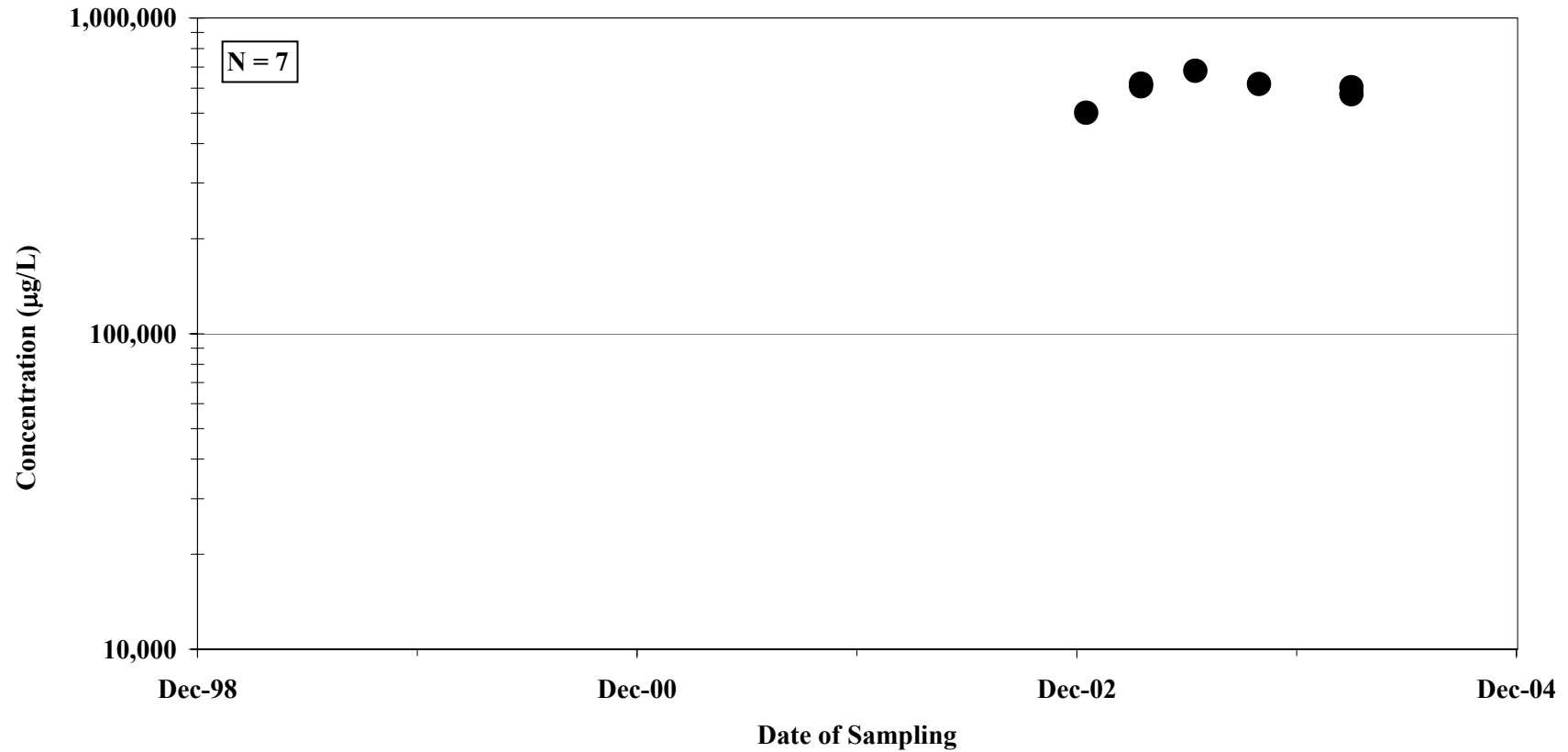


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-41**

**DISSOLVED CALCIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

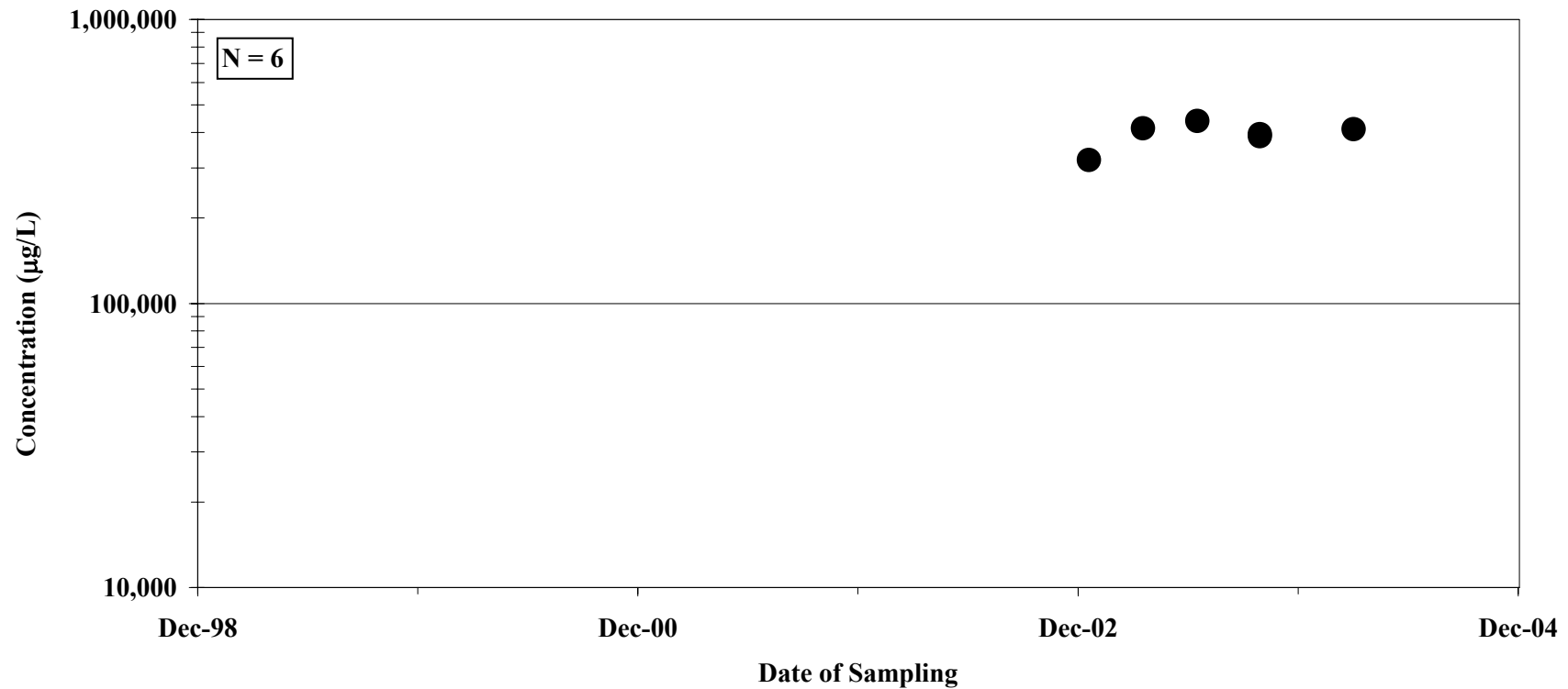


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-42**

**DISSOLVED CALCIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

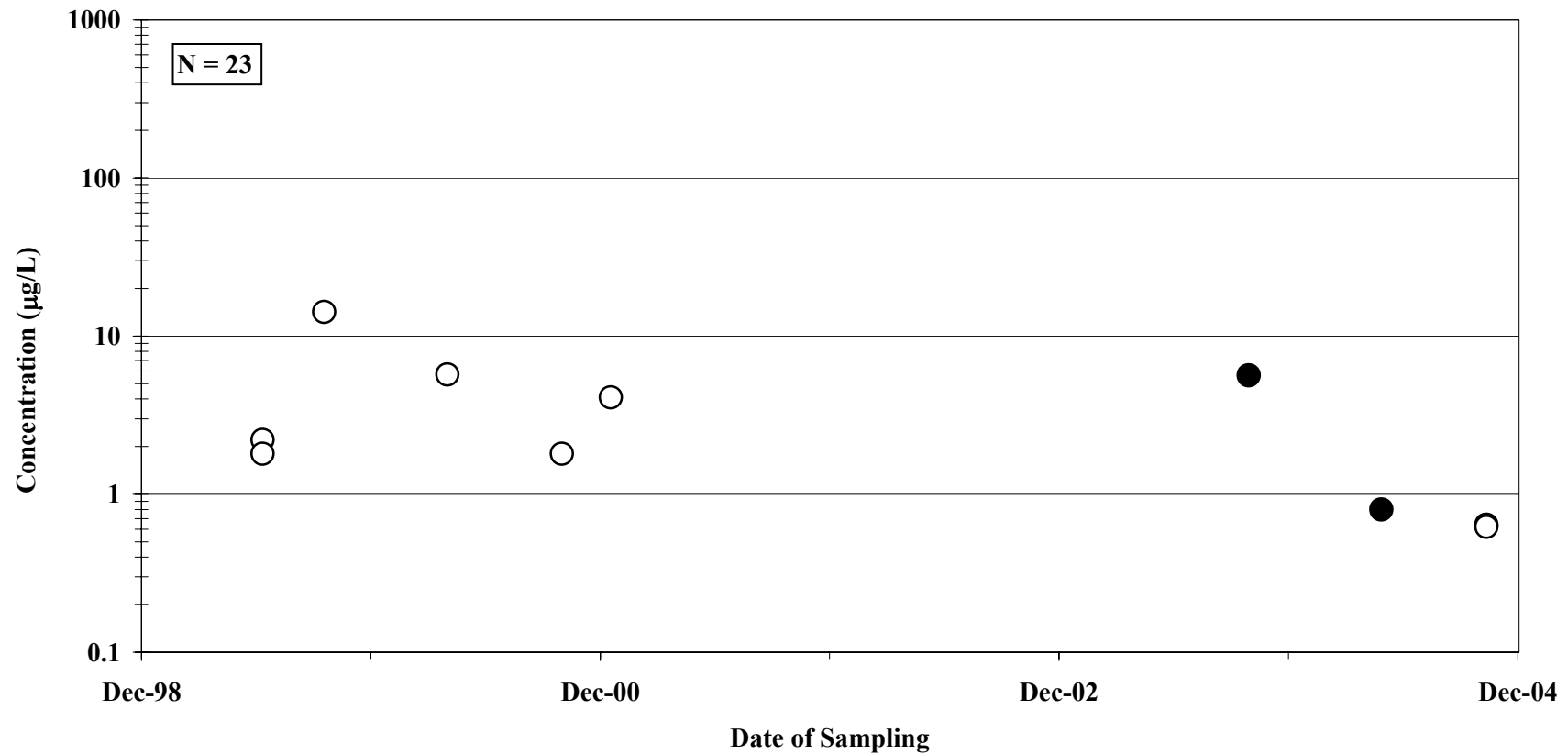


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-43**

**DISSOLVED CHROMIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

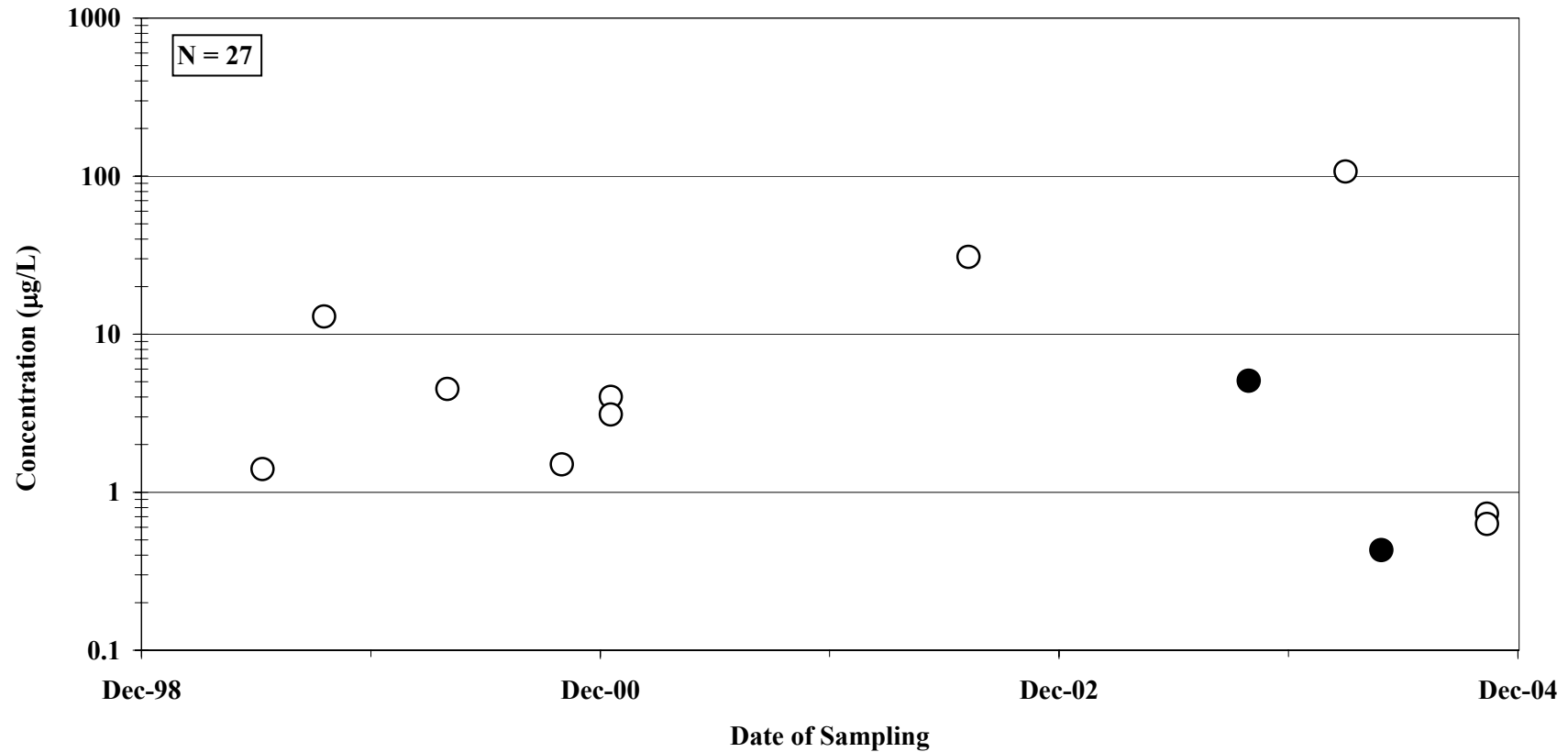


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-44**

**DISSOLVED CHROMIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

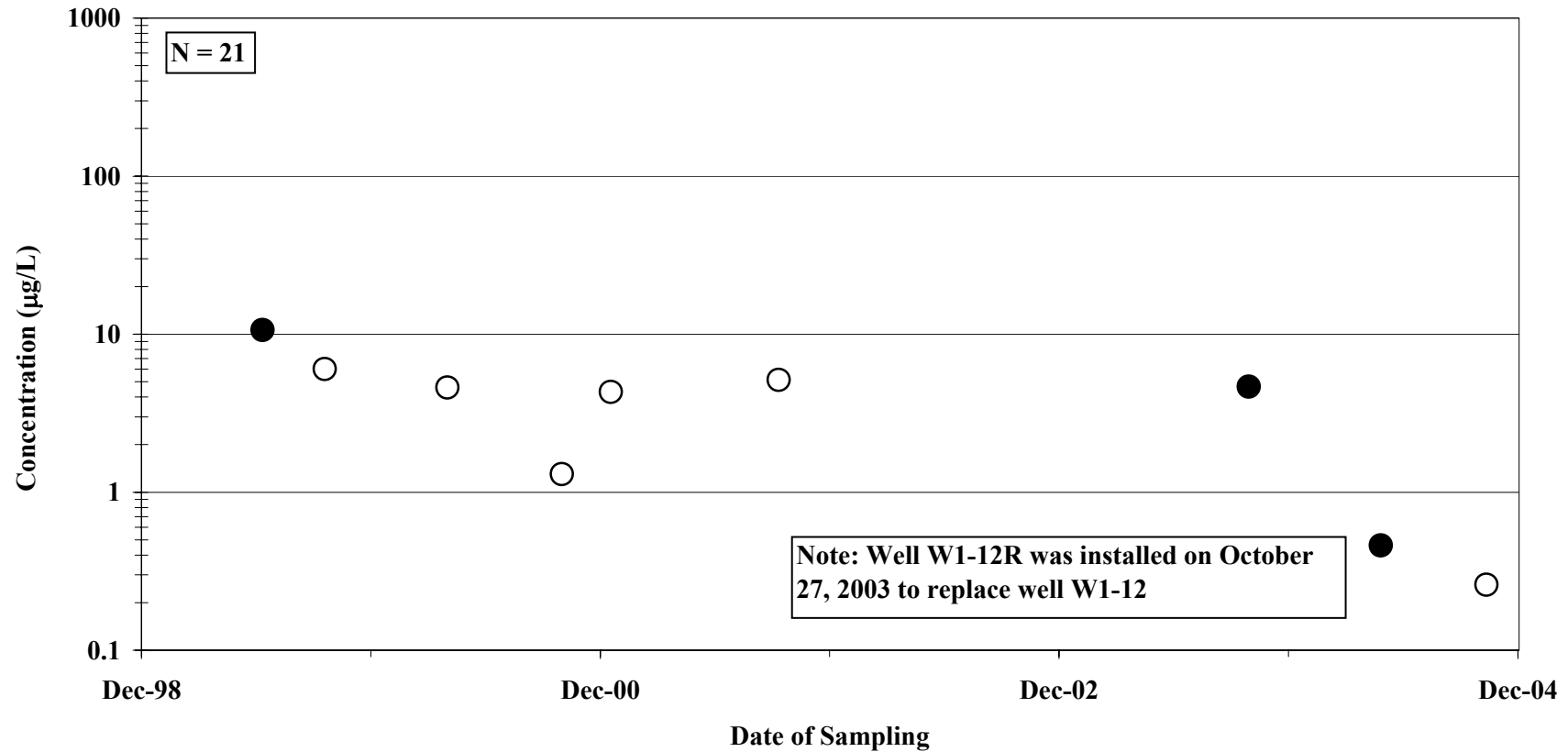


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-45

DISSOLVED CHROMIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD

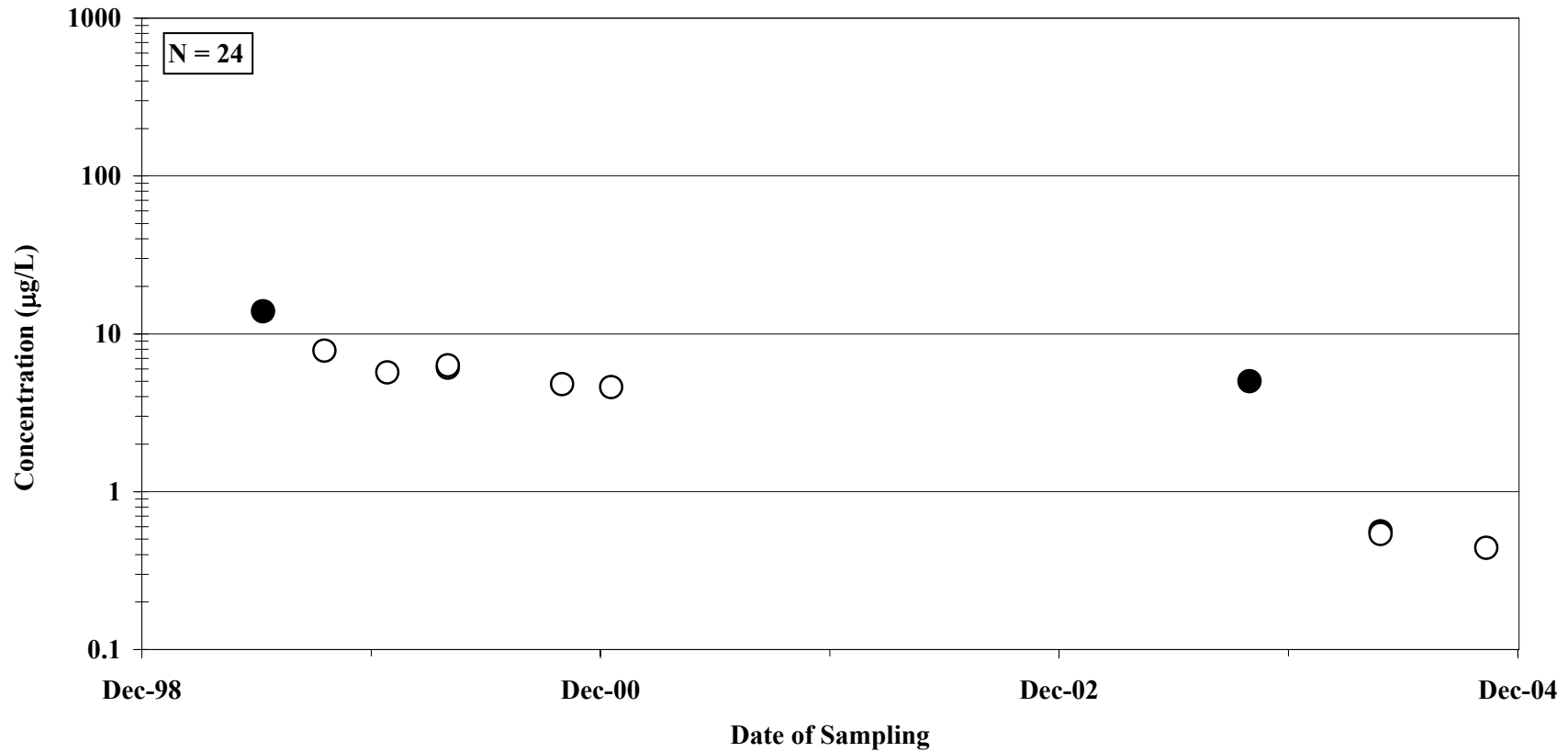


Notes:

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-46**

**DISSOLVED CHROMIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

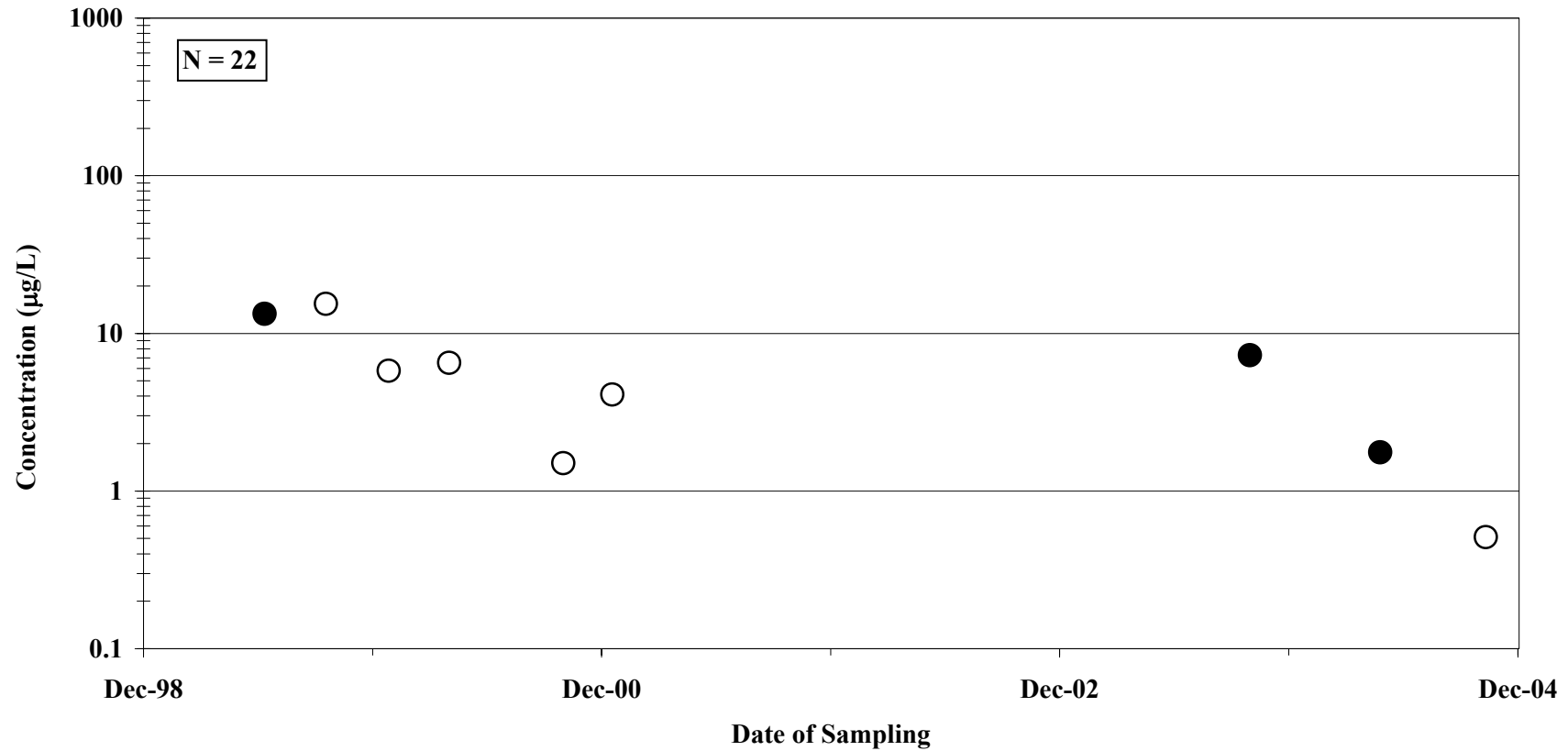


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-47

DISSOLVED CHROMIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD



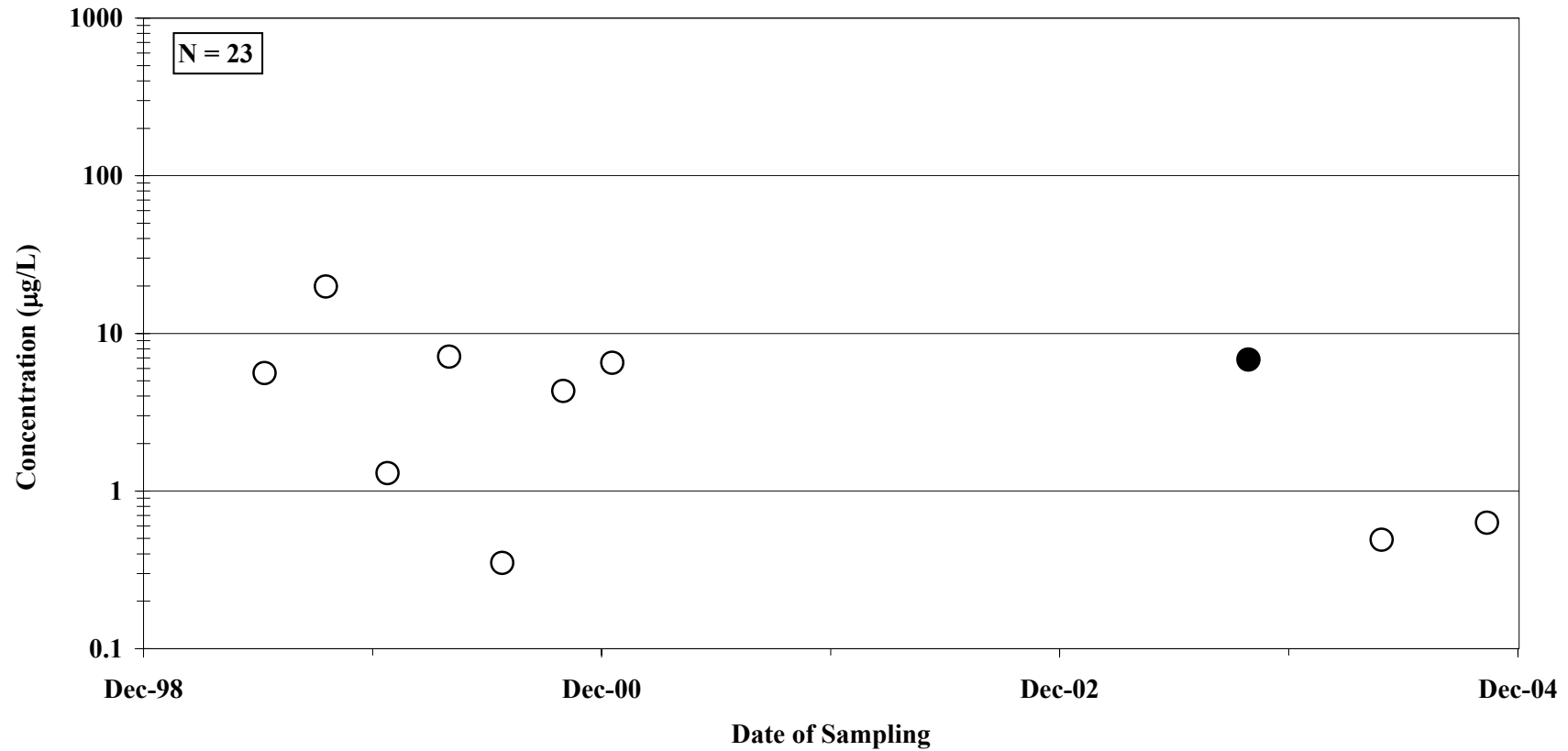
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-48**

**DISSOLVED CHROMIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

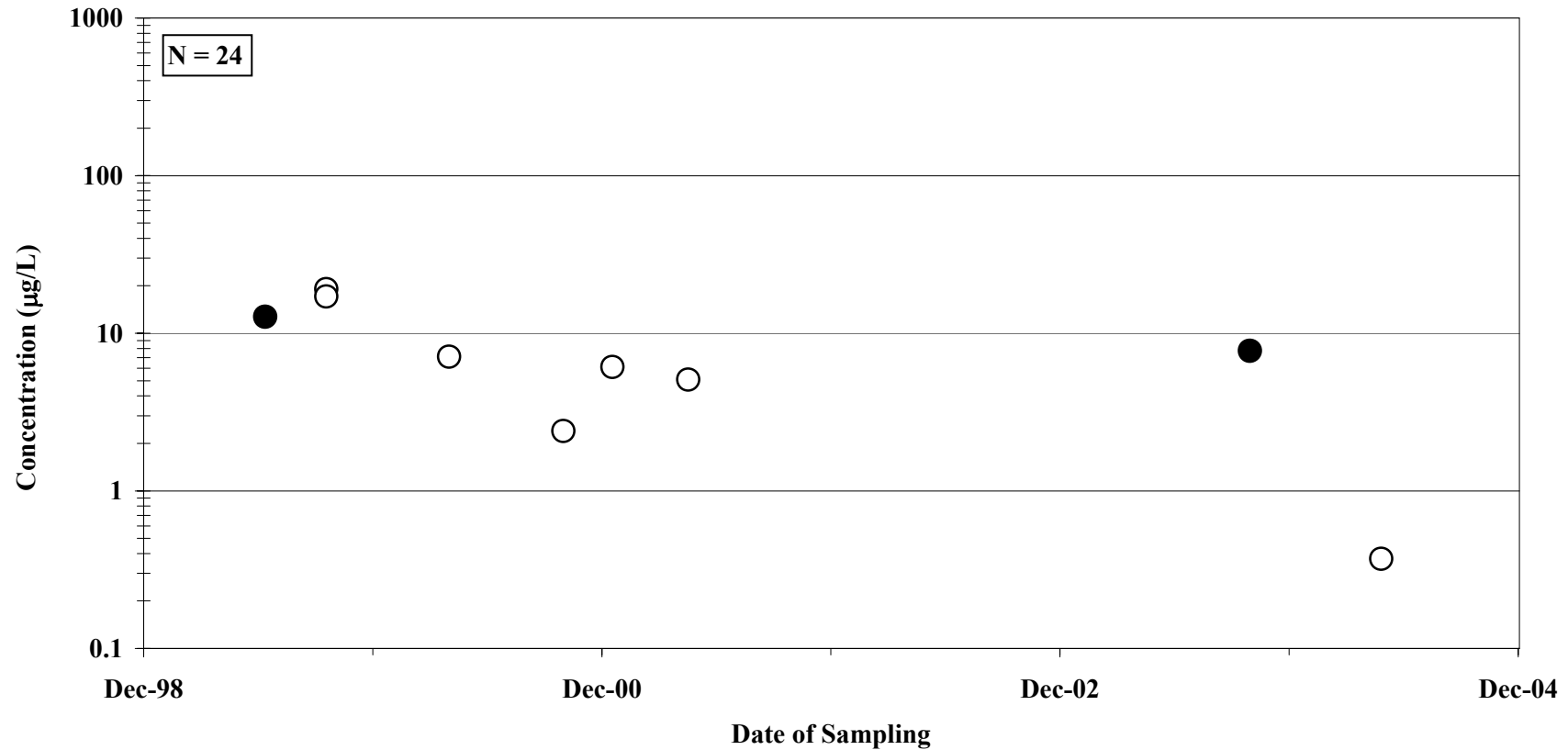


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-49**

**DISSOLVED CHROMIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

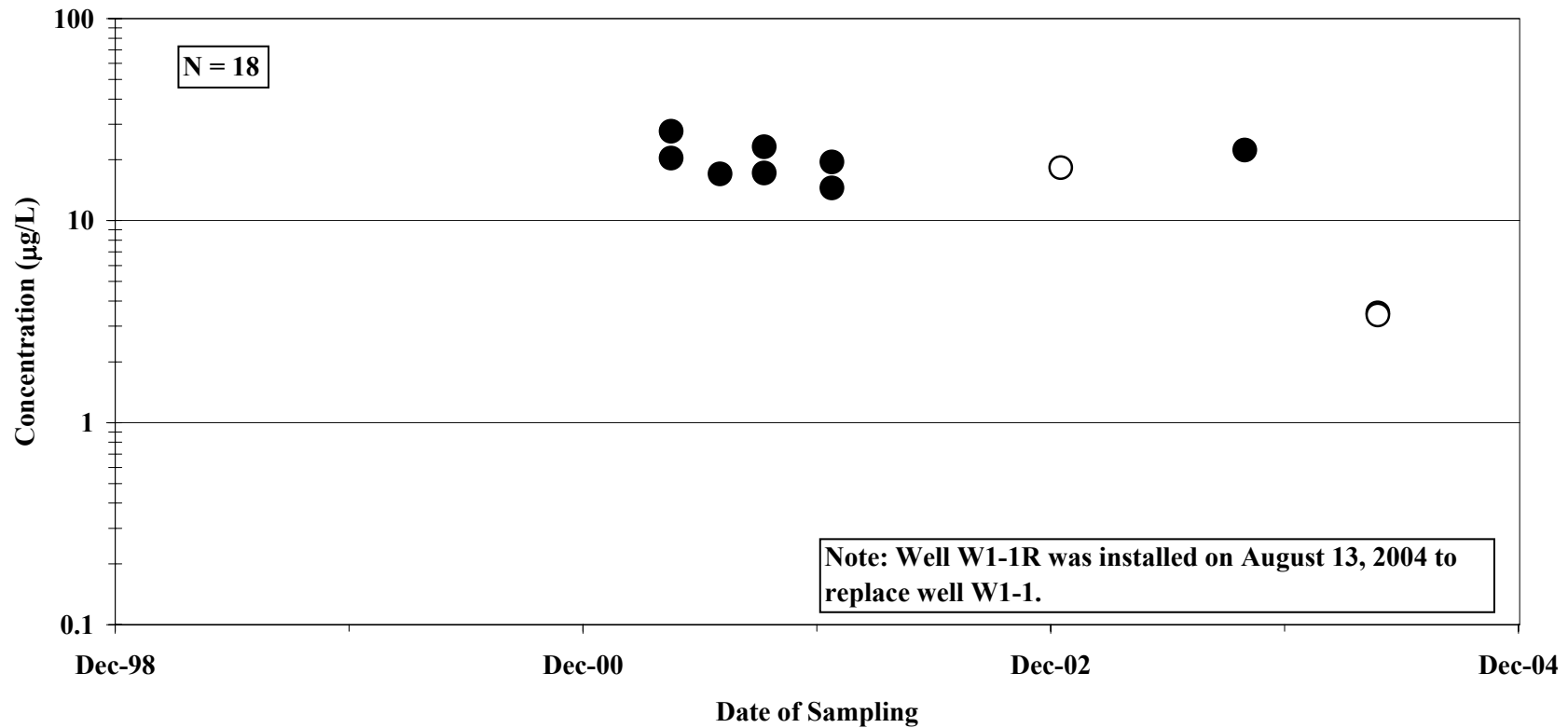


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-50**

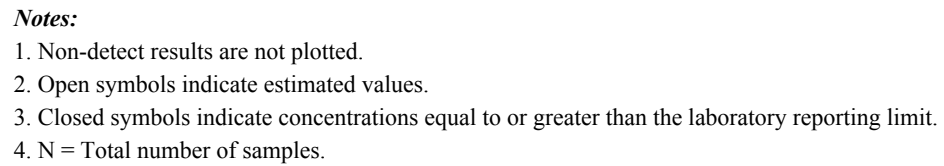
**DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



**Notes:**

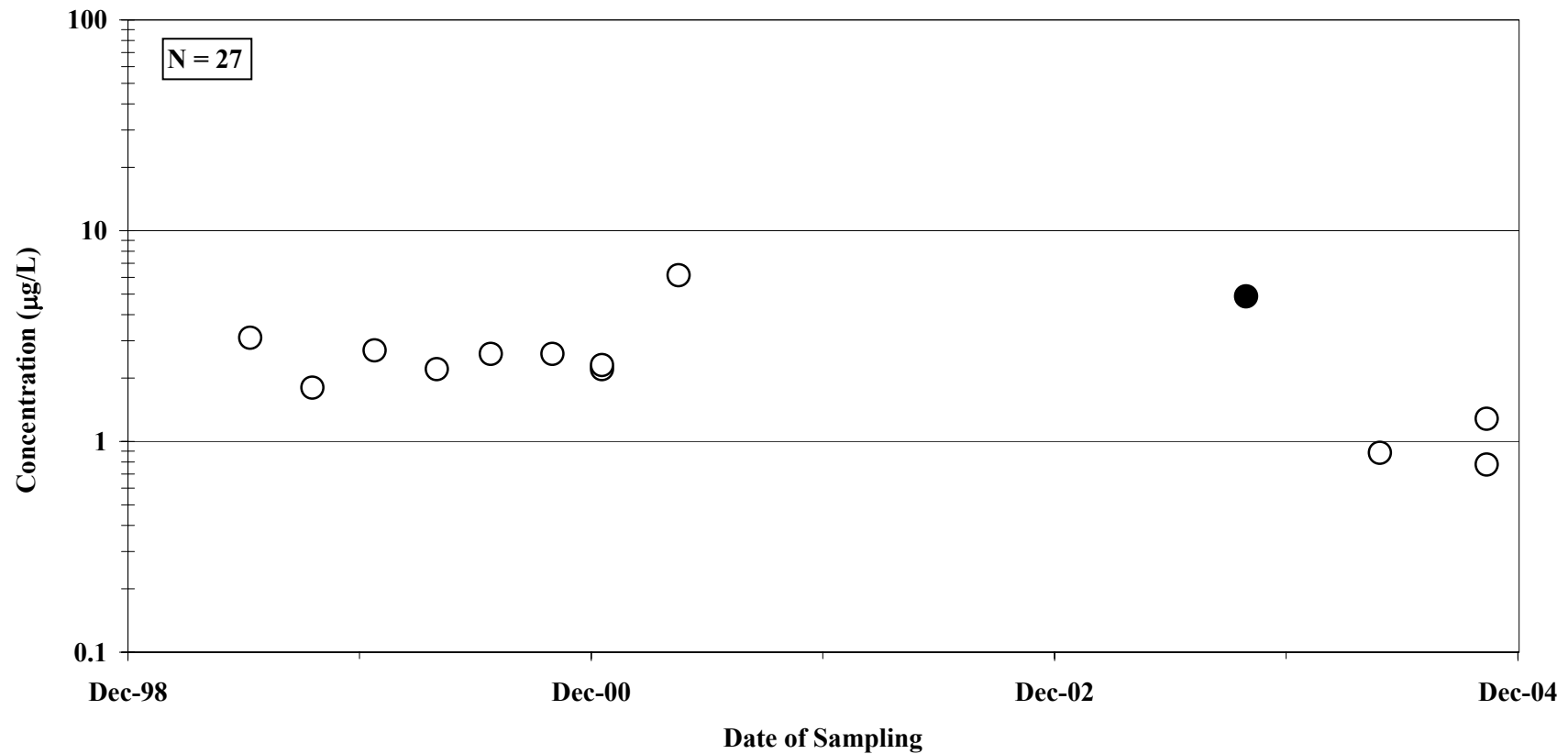
1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**DISSOLVED COBALT CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



**FIGURE E-52**

**DISSOLVED COBALT CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

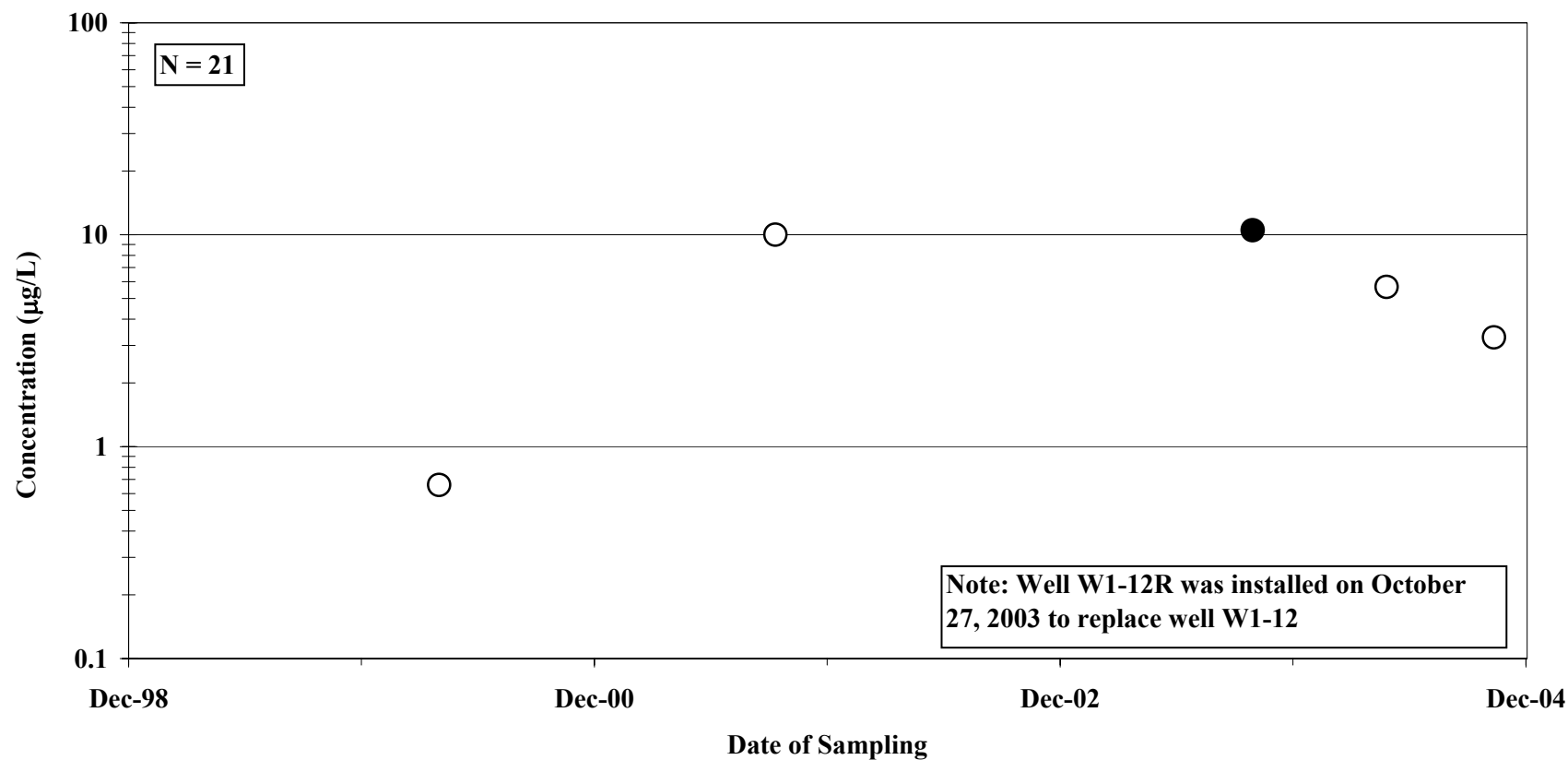


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-53**

**DISSOLVED COBALT CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

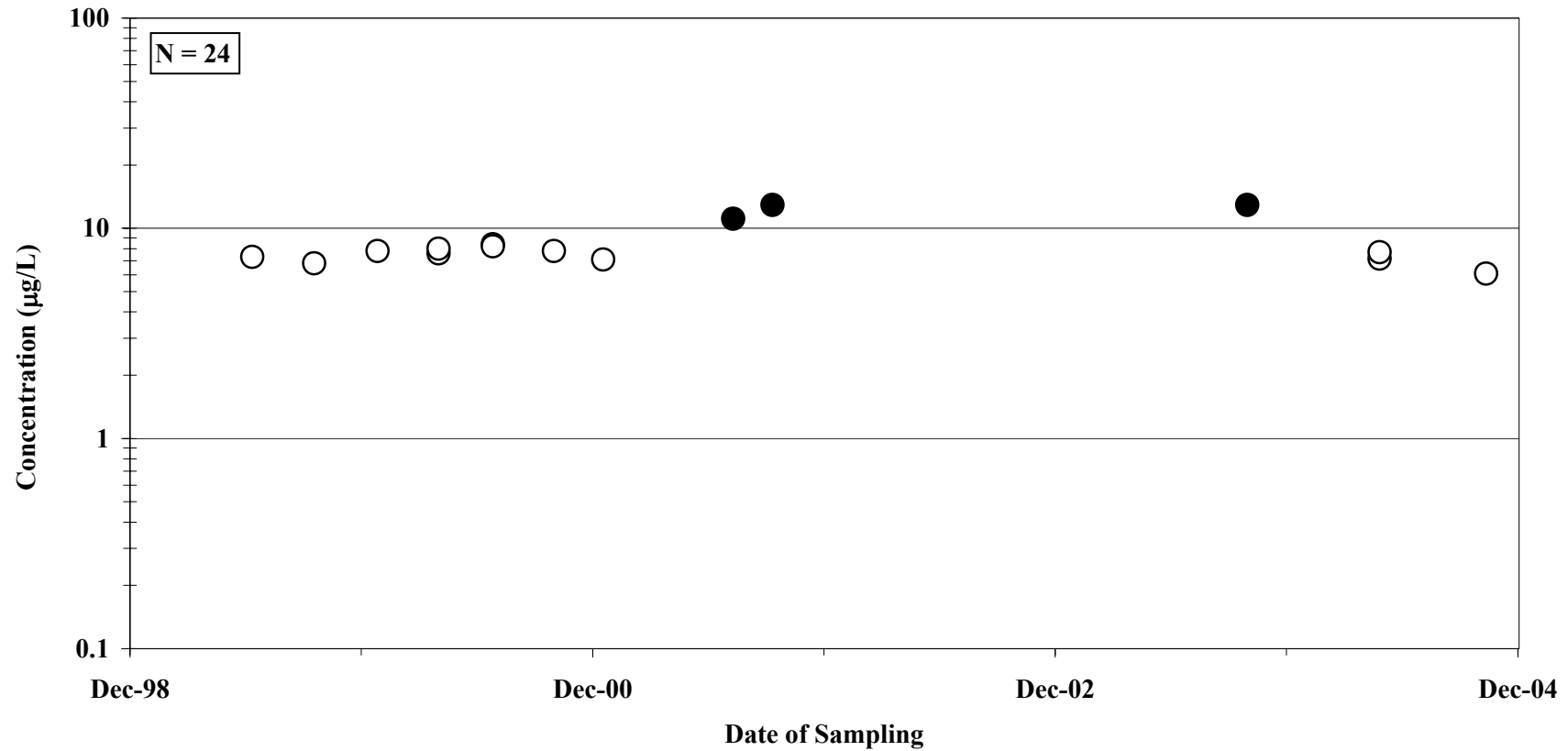


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-54**

**DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

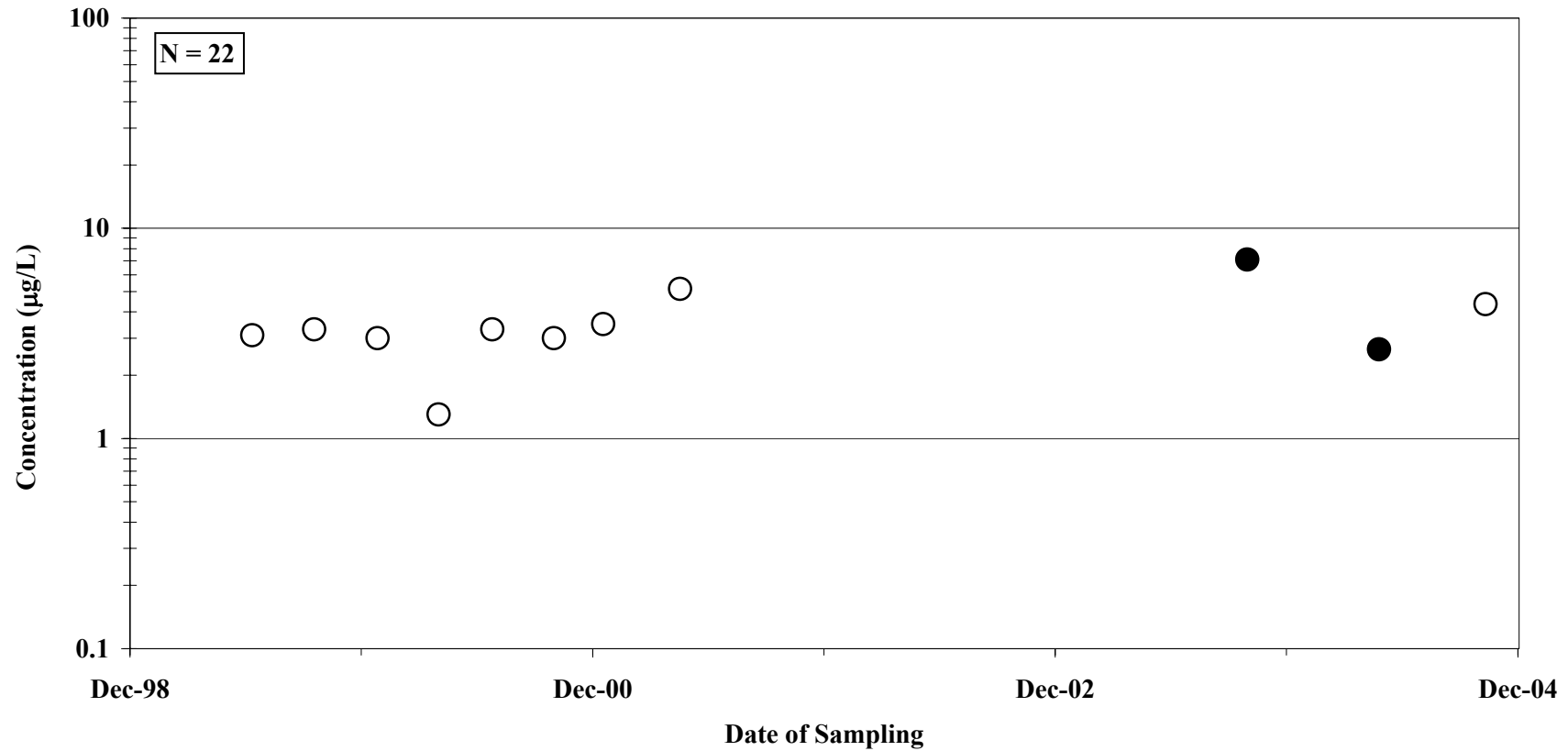


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-55**

**DISSOLVED COBALT CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



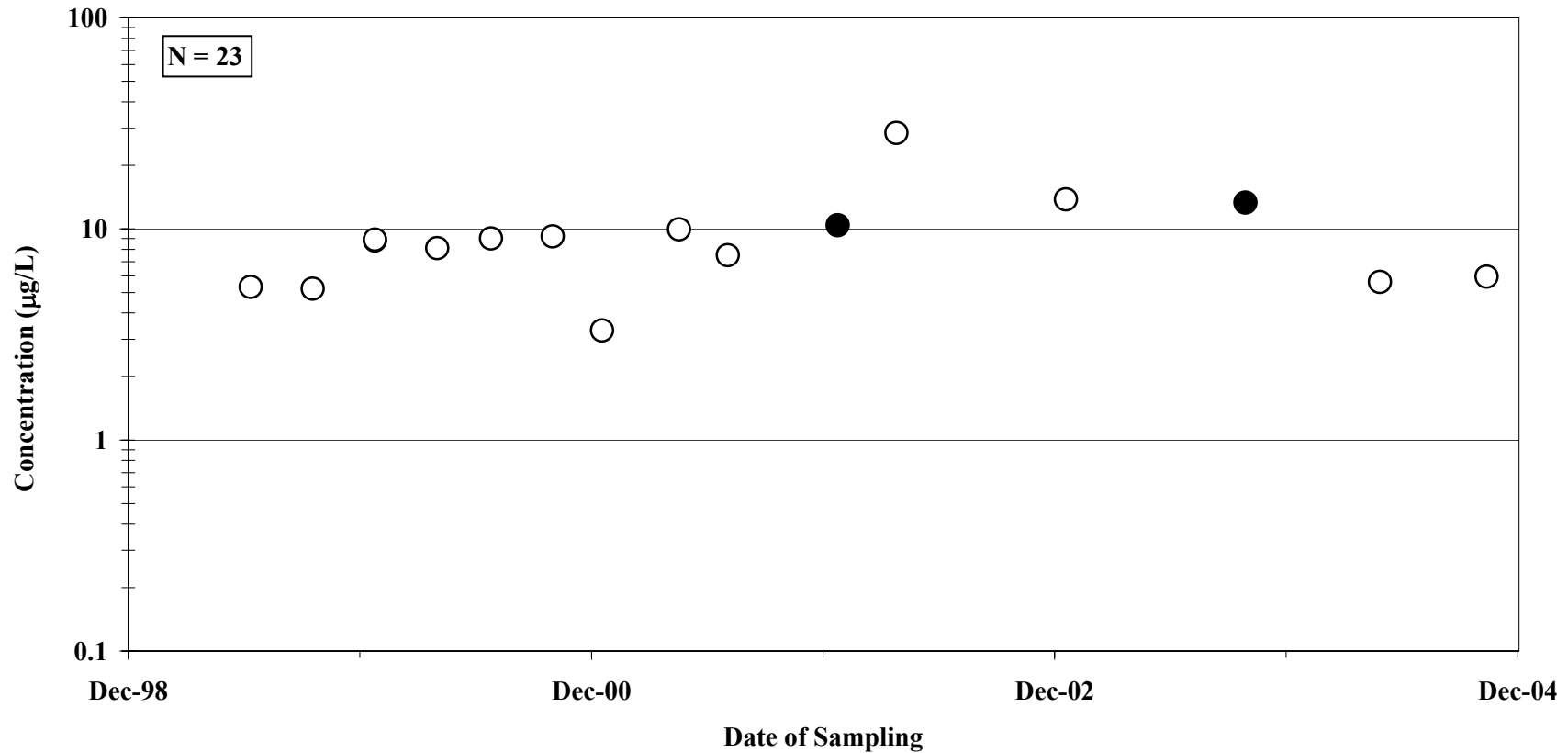
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-56**

**DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

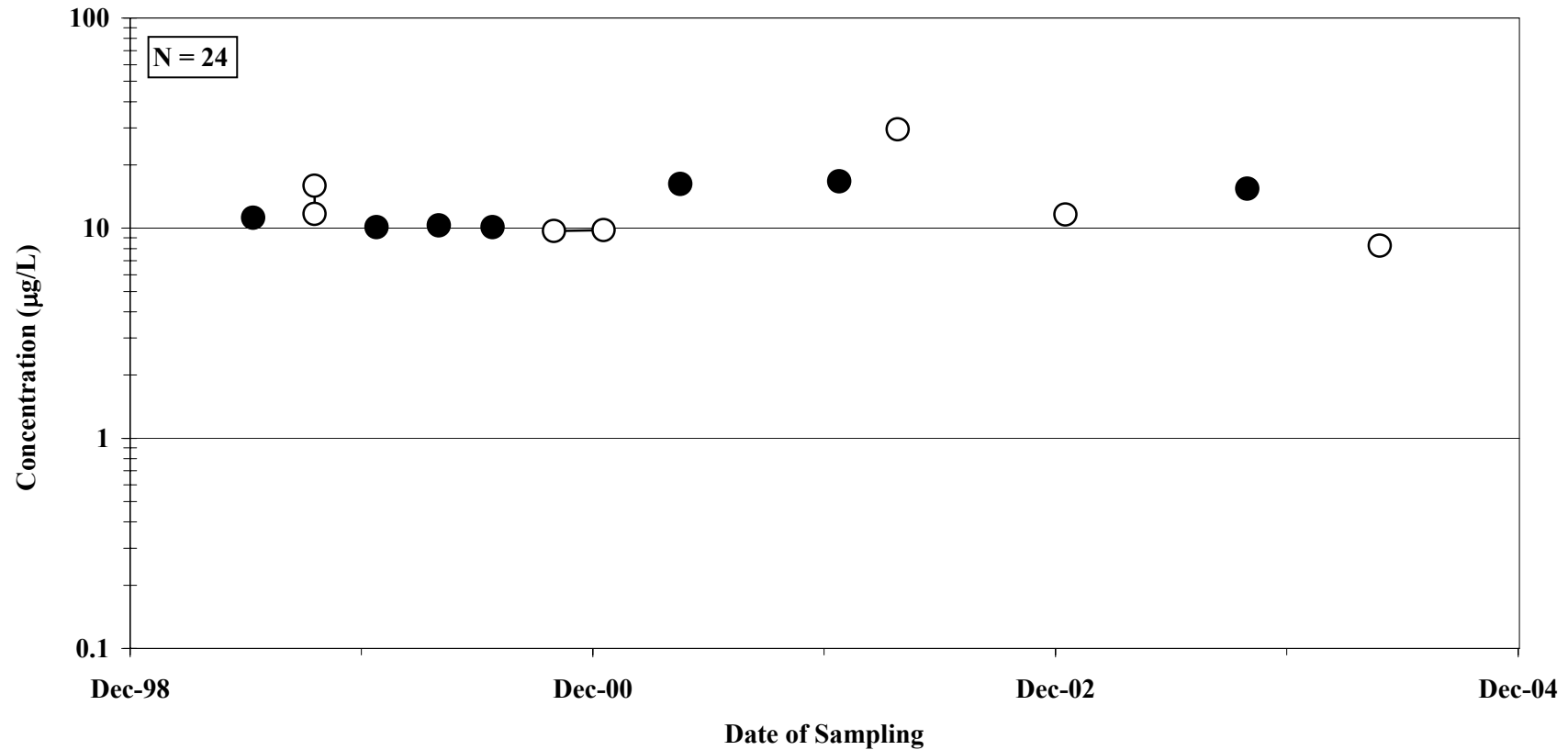


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-57**

**DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

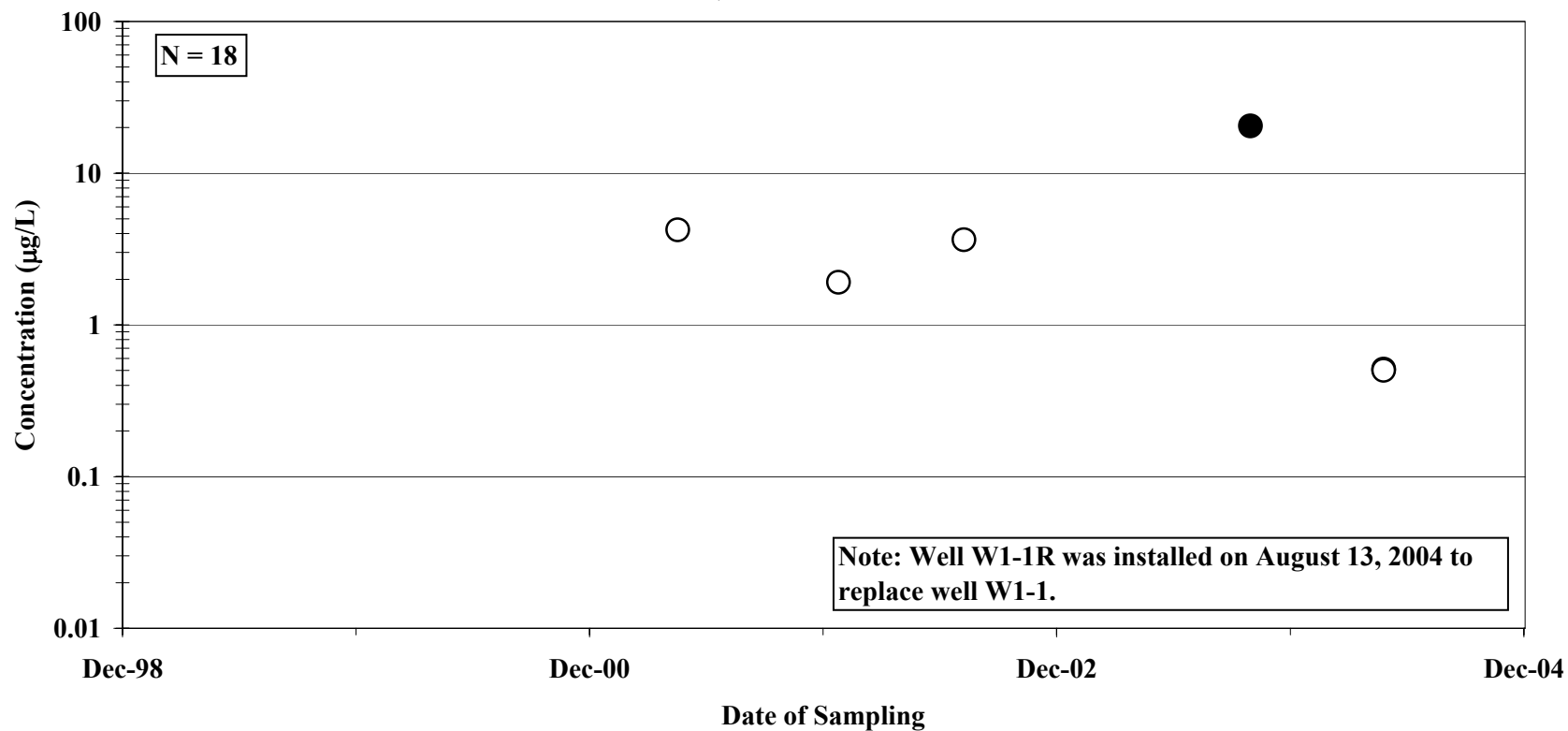


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-58**

**DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

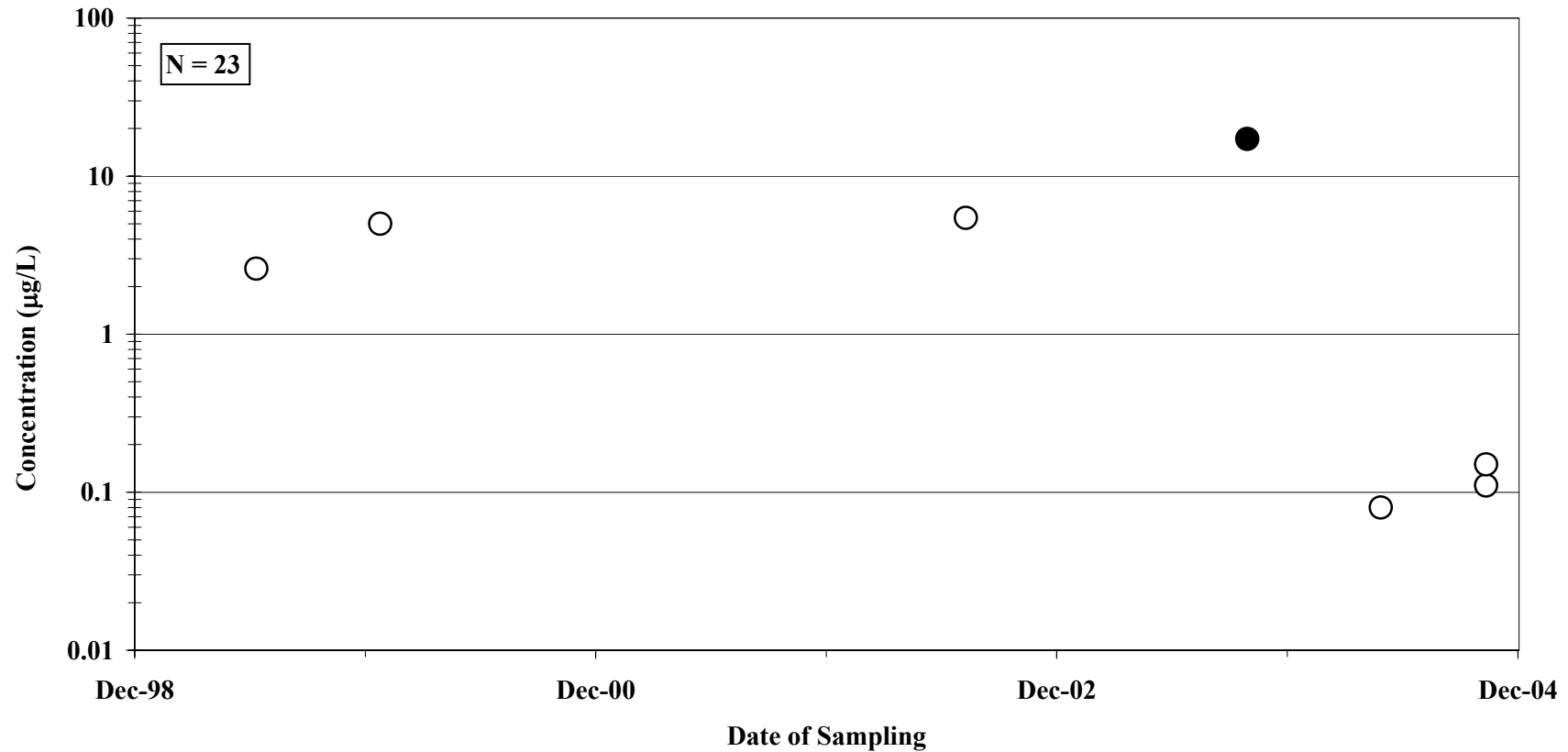


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-59**

**DISSOLVED COPPER CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

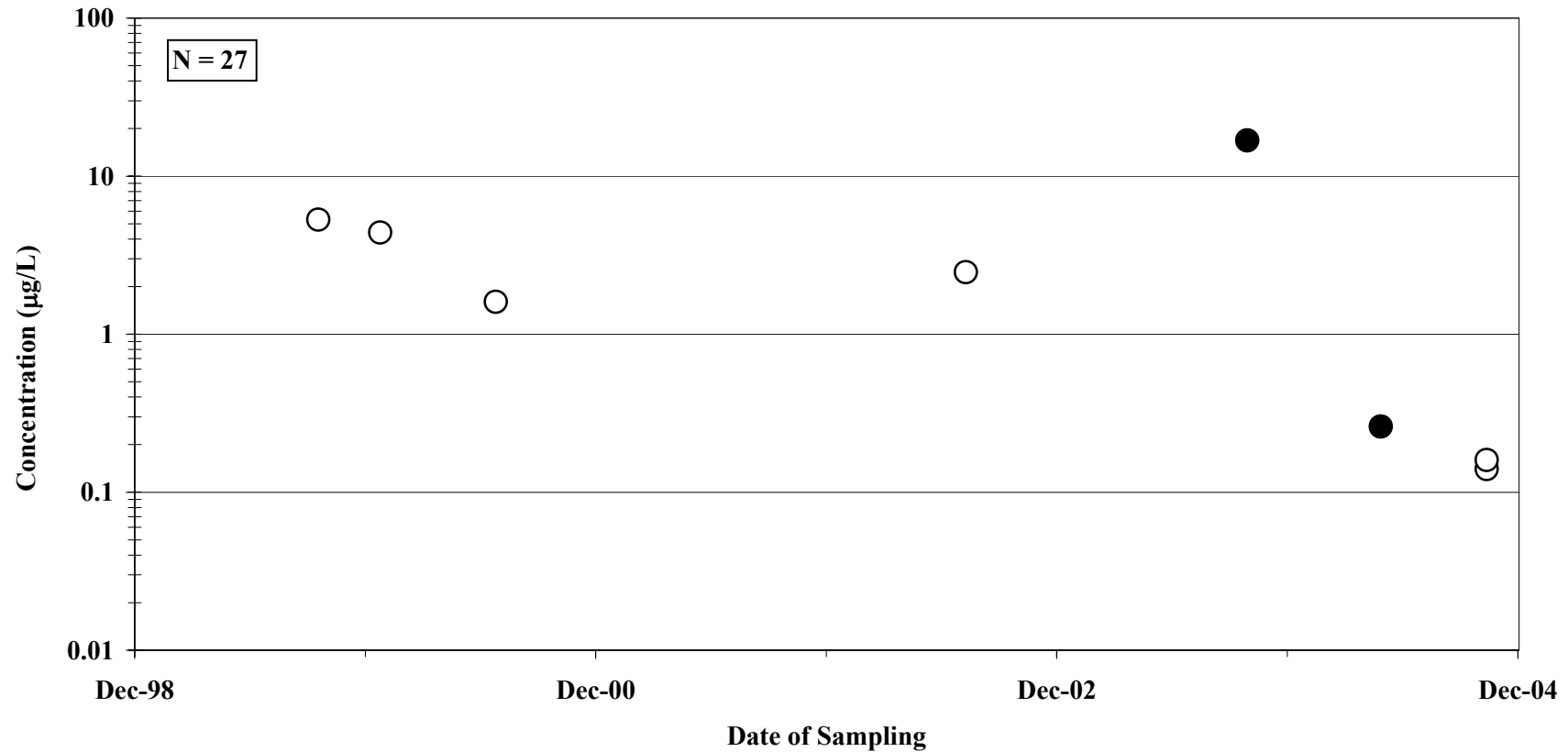


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-60**

**DISSOLVED COPPER CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

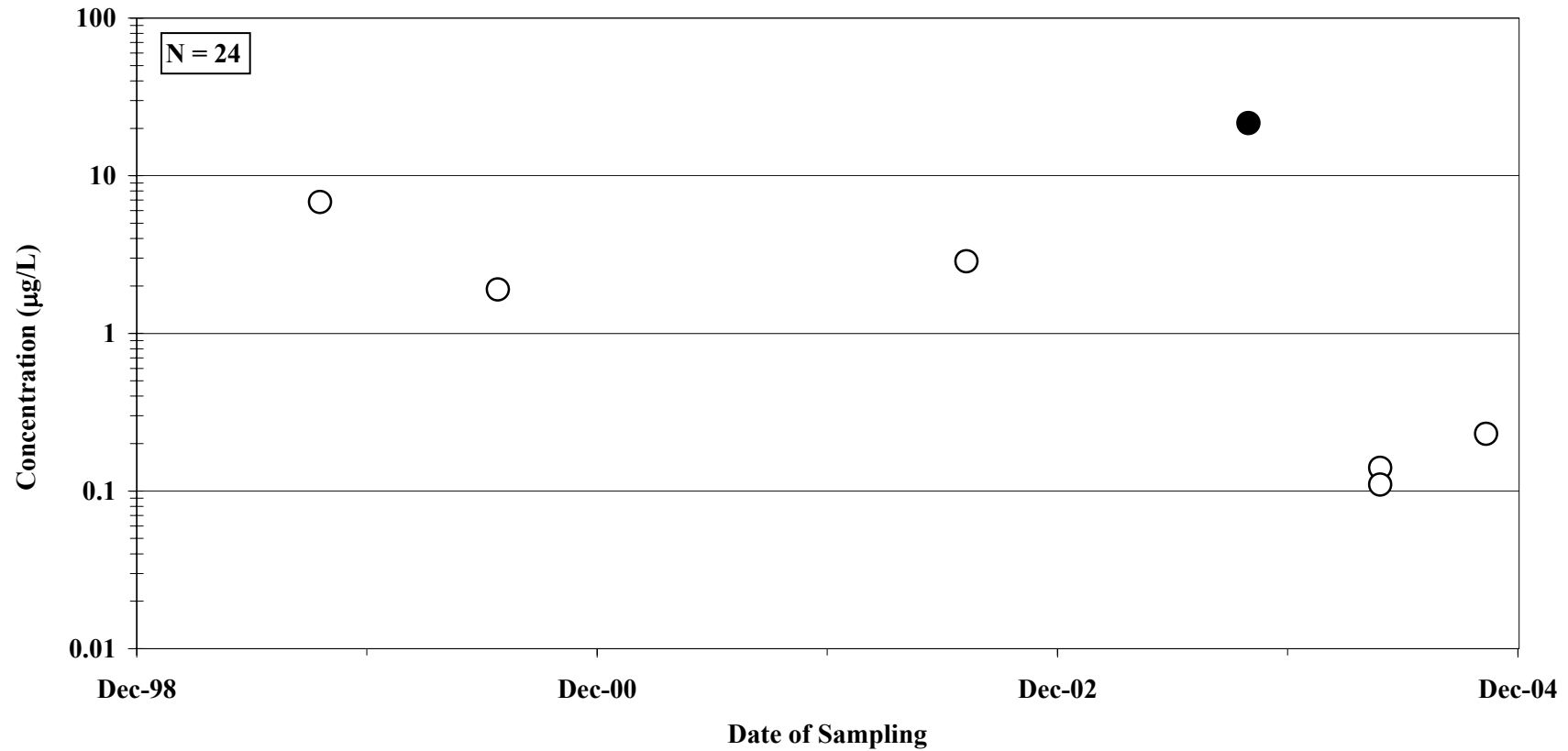


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-61**

**DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

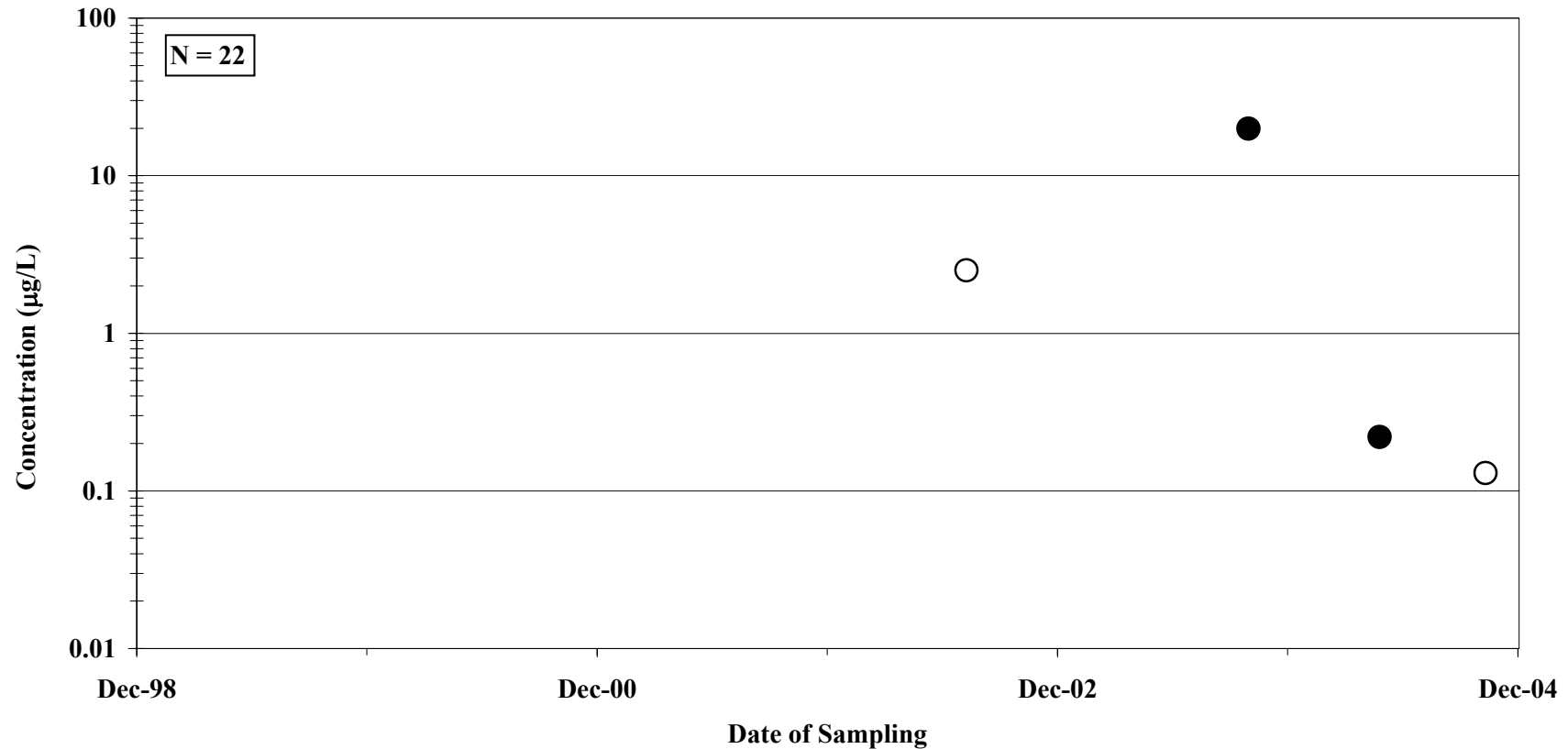


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-62**

**DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

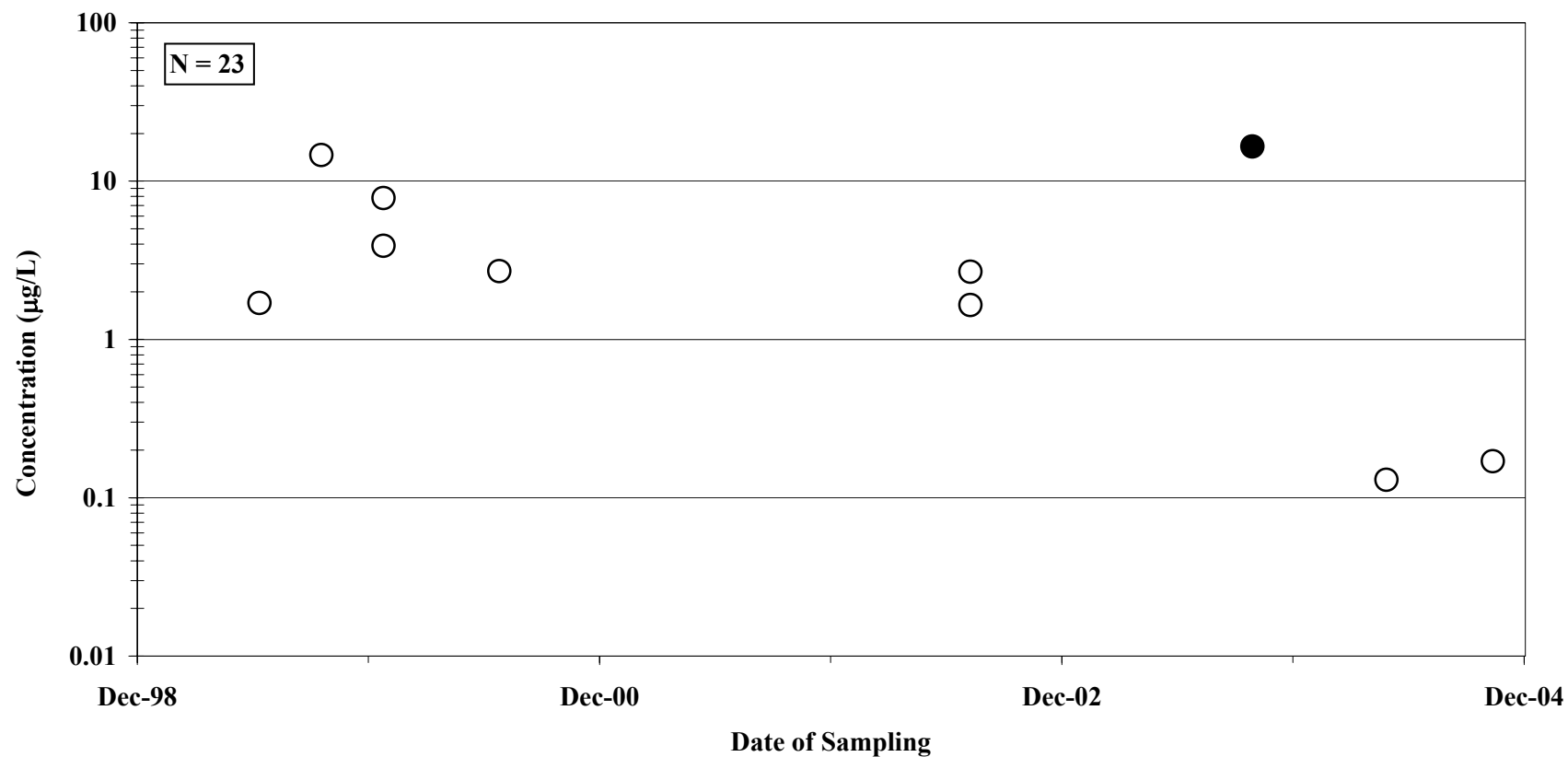


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-63**

**DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



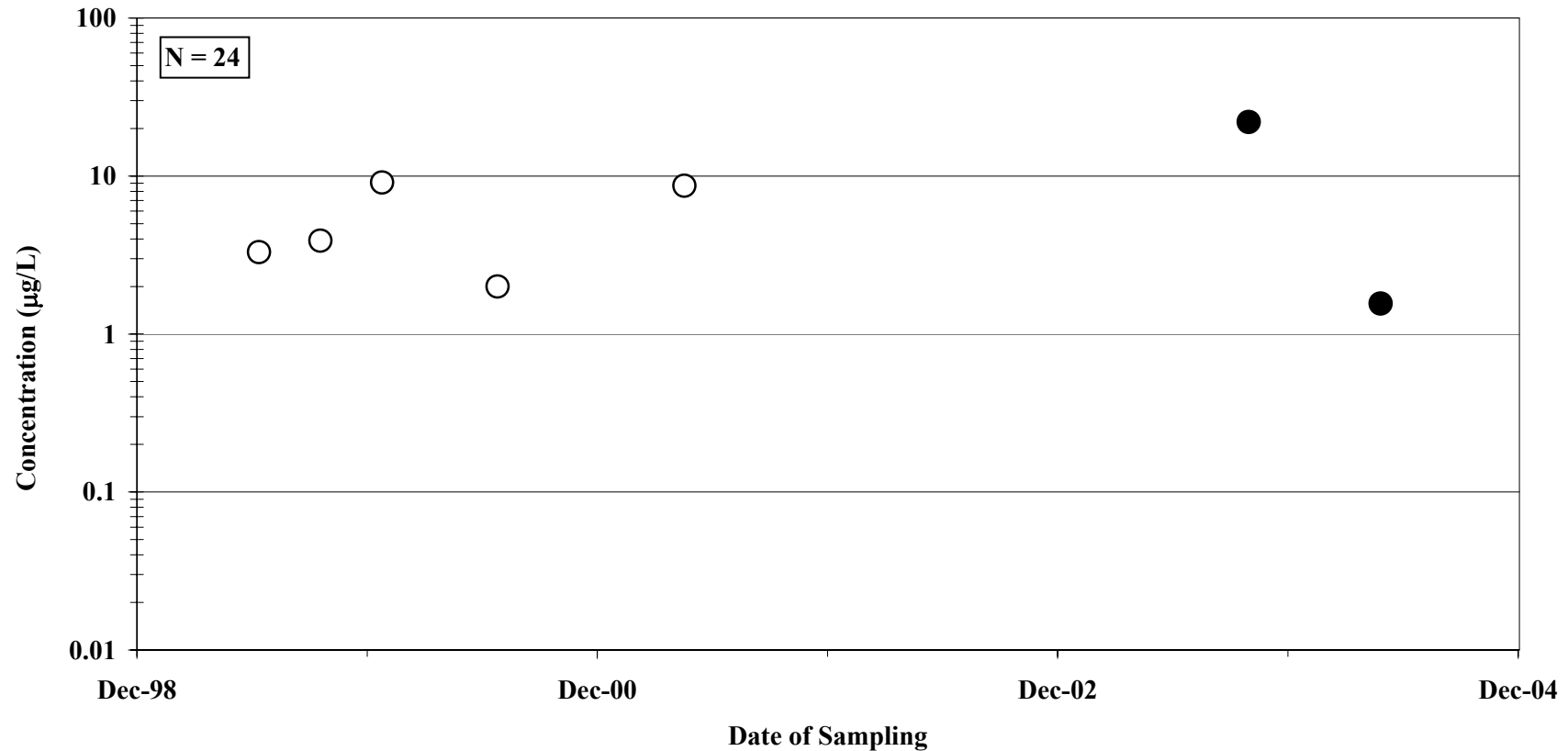
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-64**

**DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

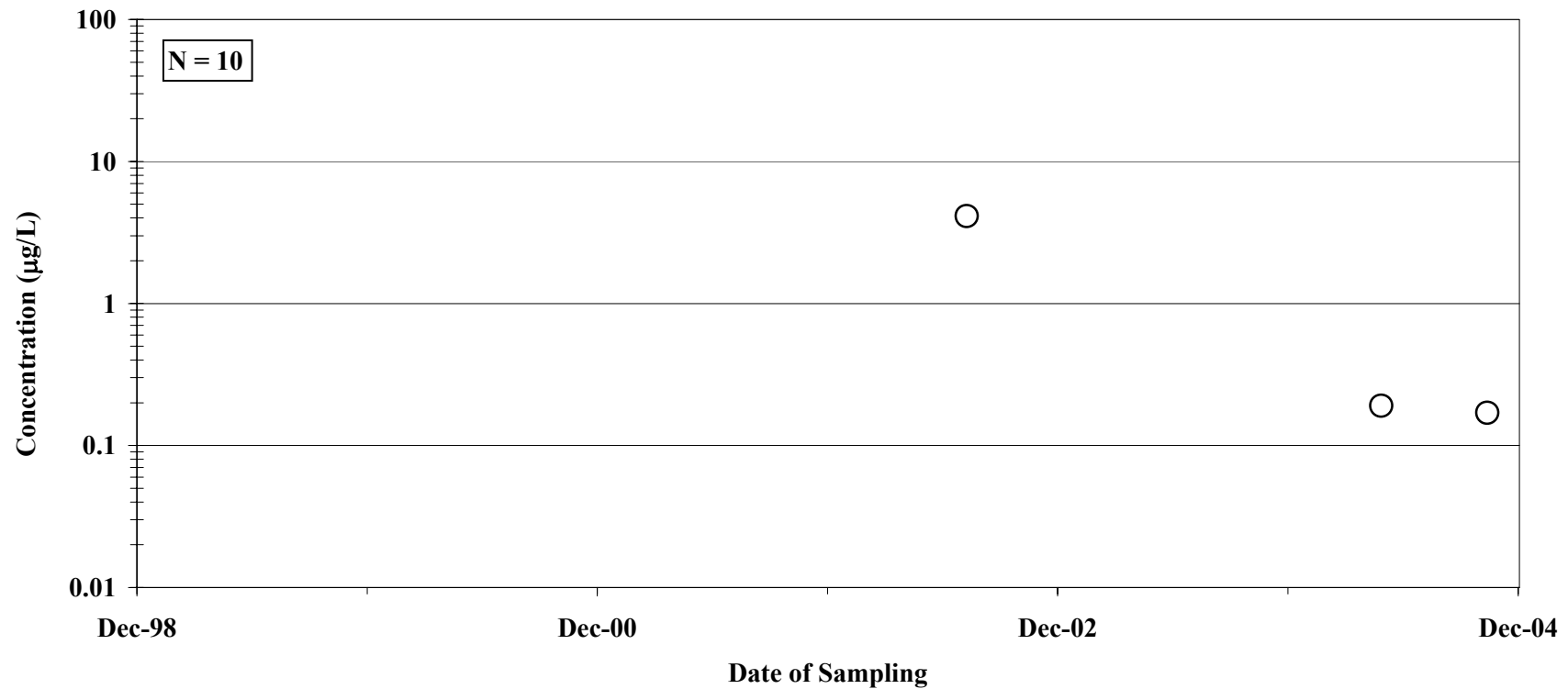


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-65**

**DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

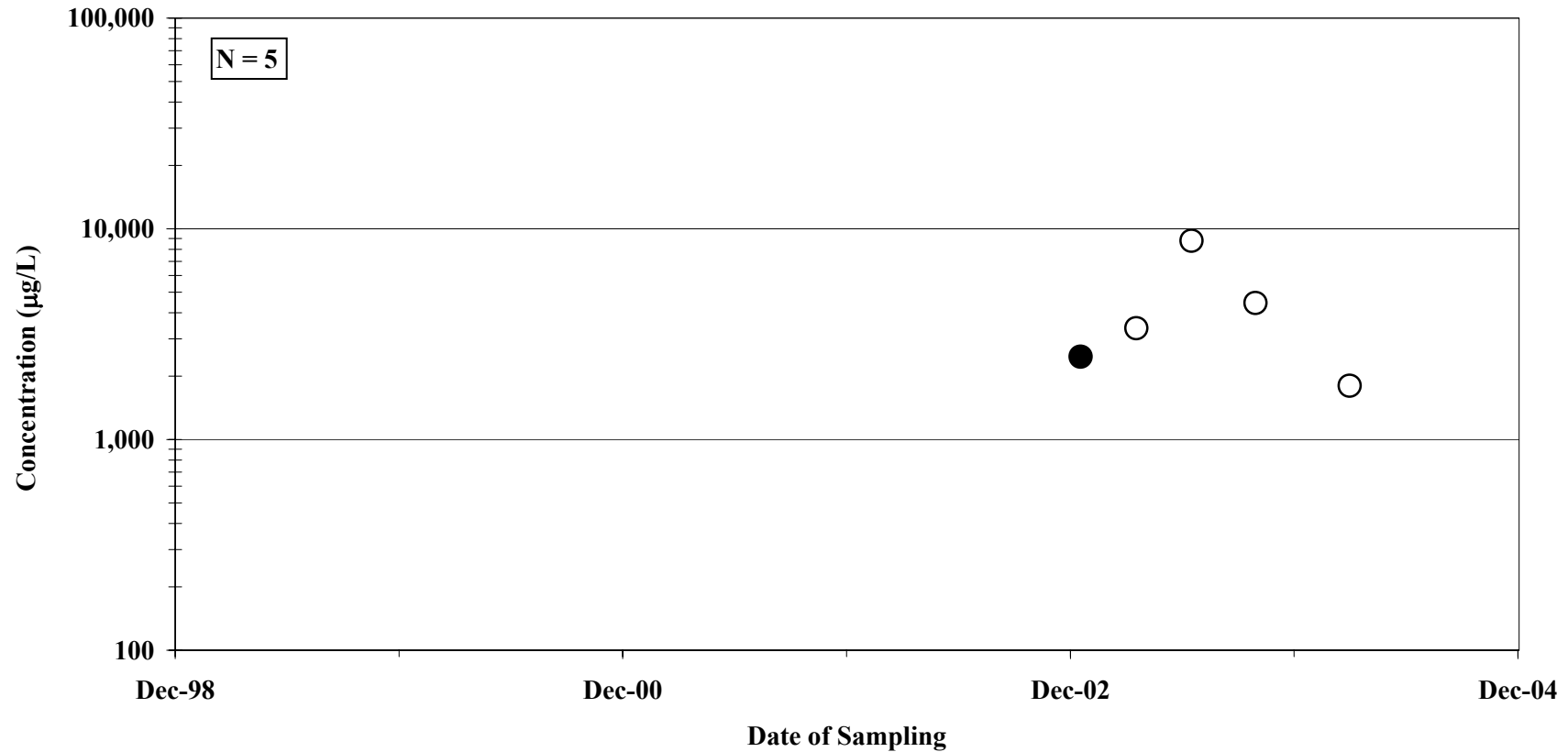


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-66**

**DISSOLVED IRON CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

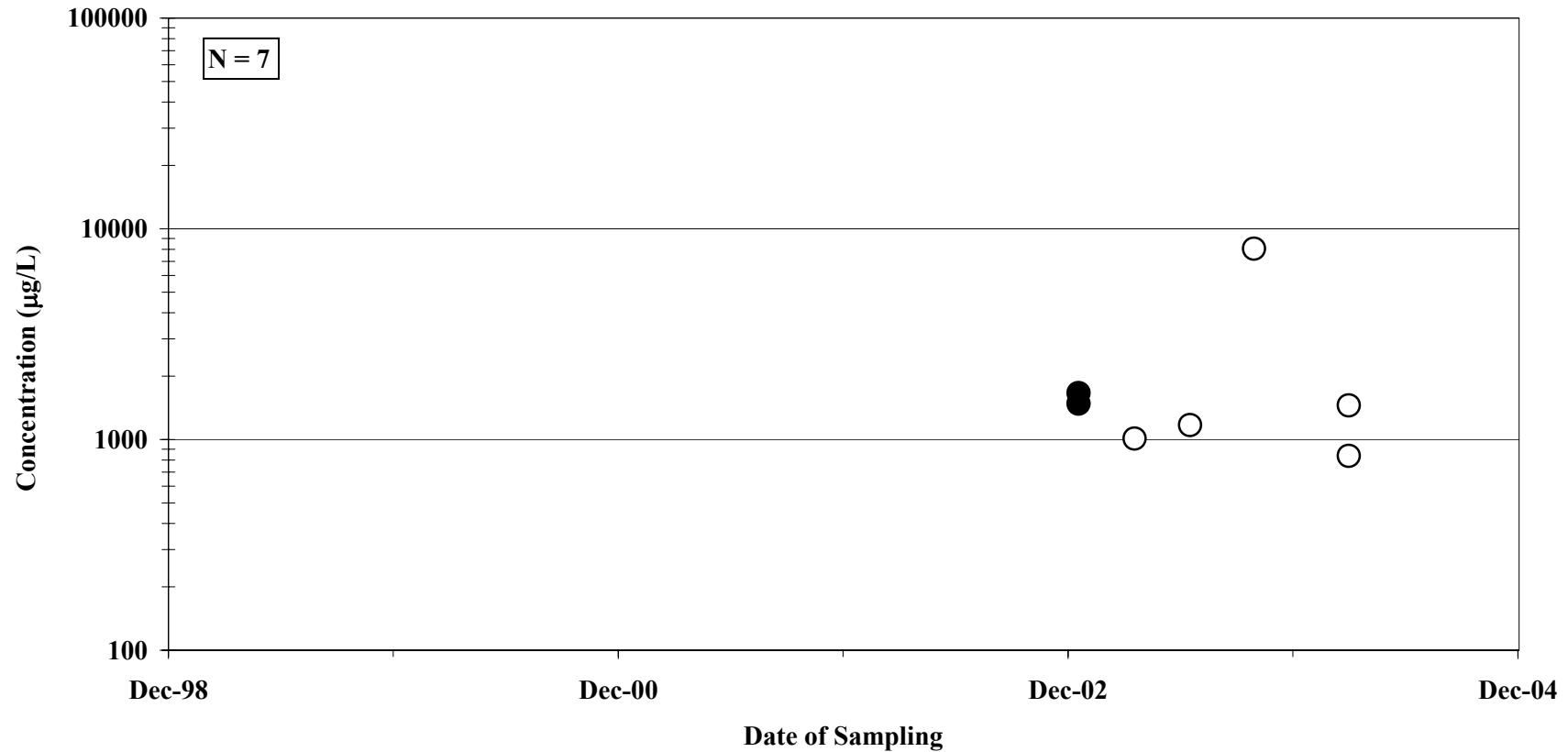


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-67**

**DISSOLVED IRON CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

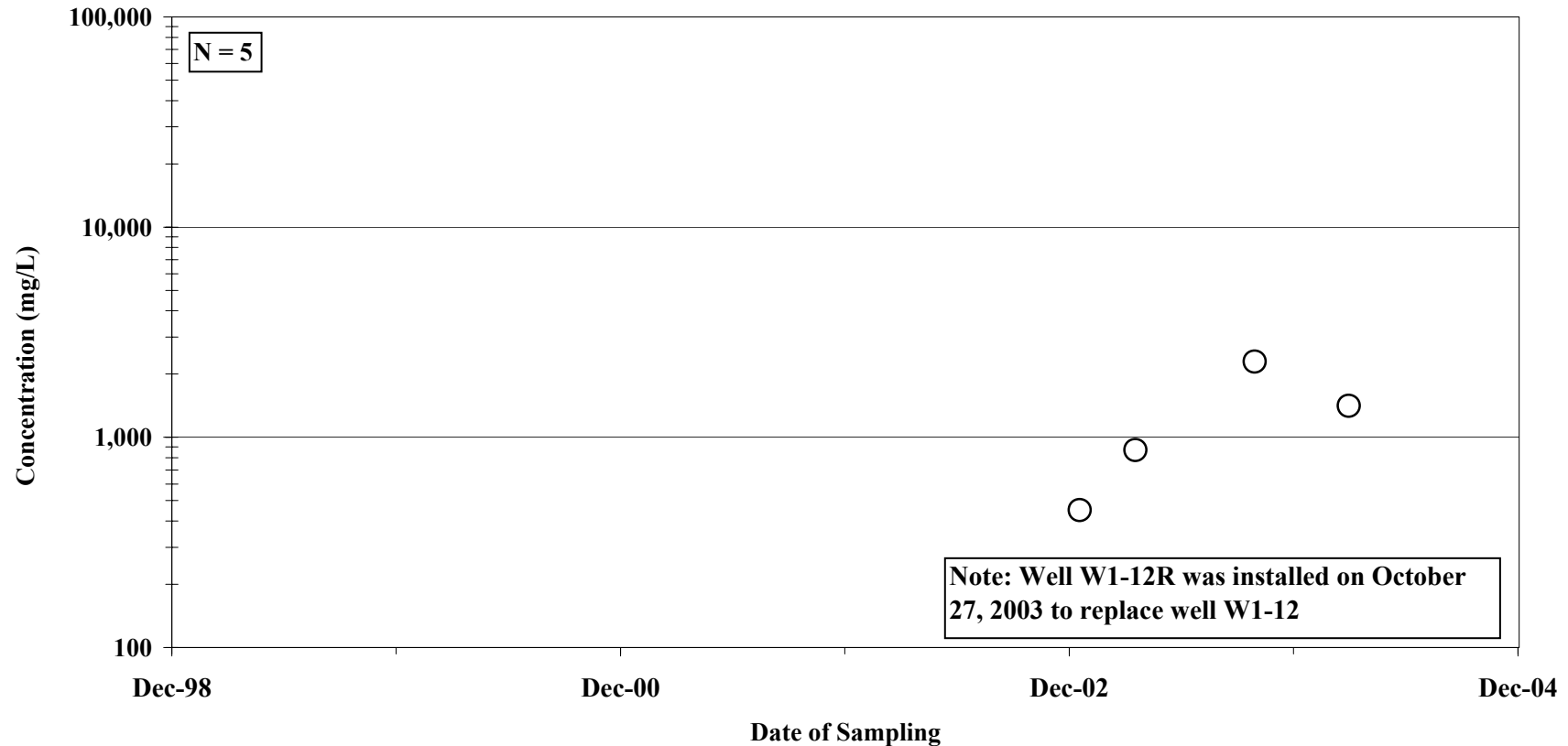


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-68**

**DISSOLVED IRON CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

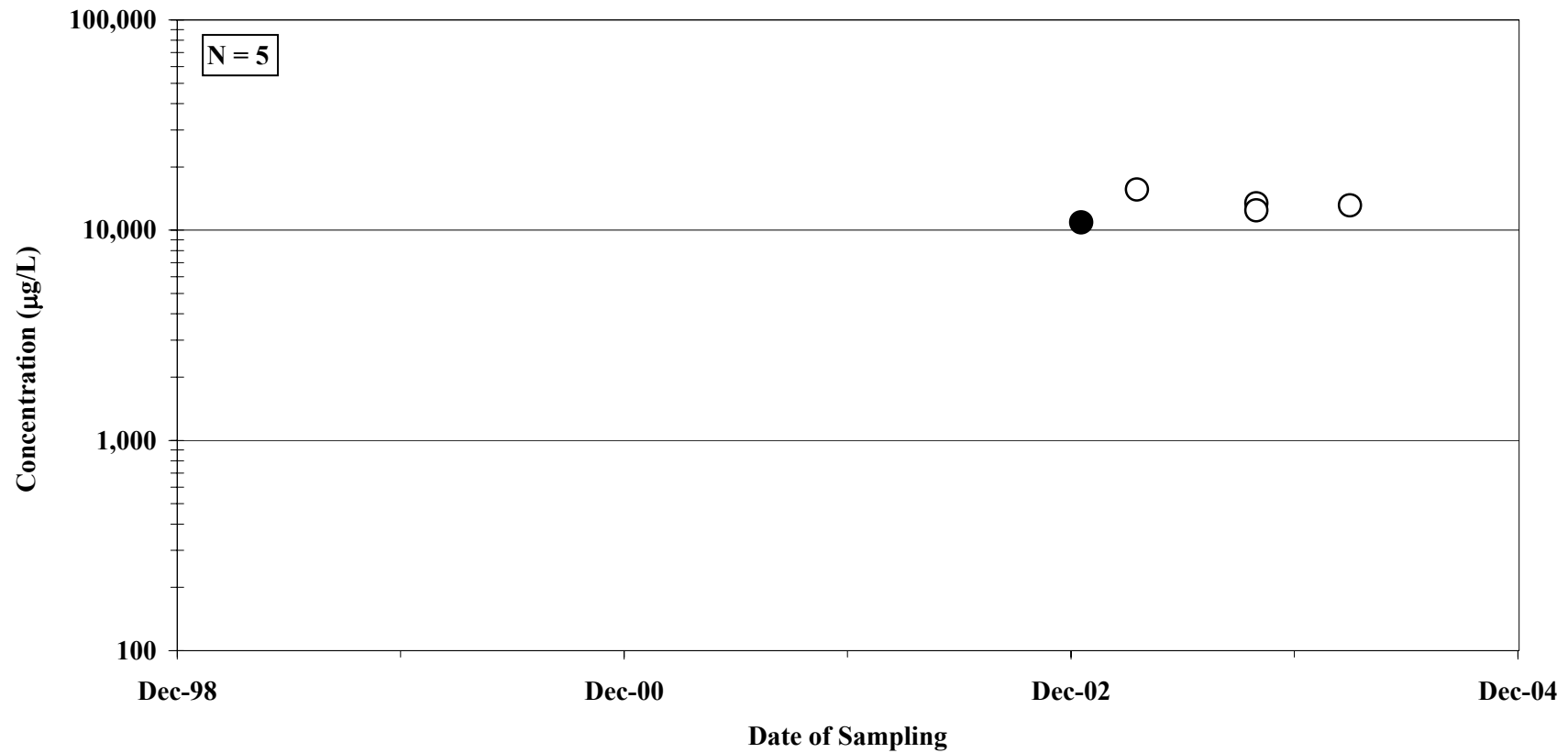


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-69**

**DISSOLVED IRON CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

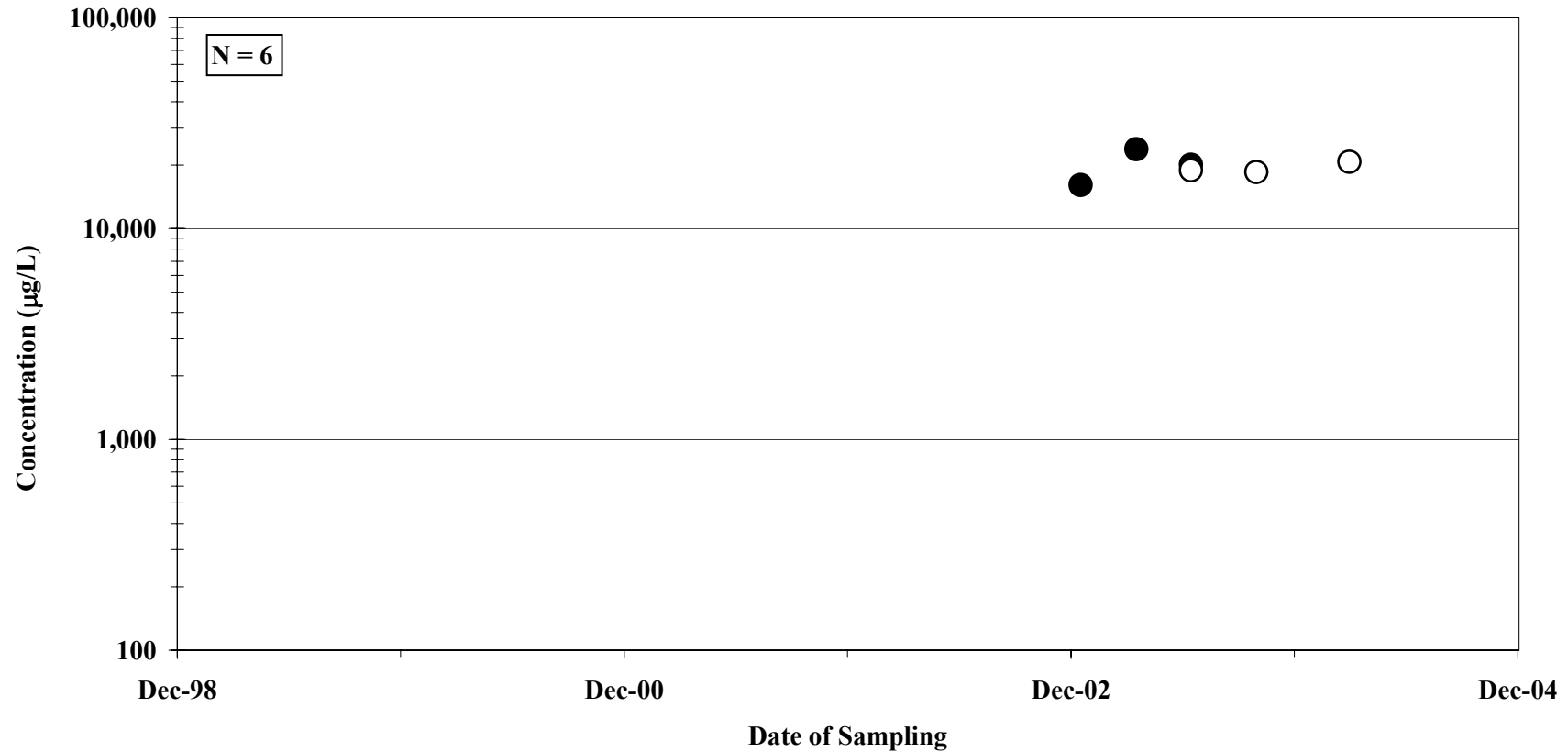


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-70**

**DISSOLVED IRON CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

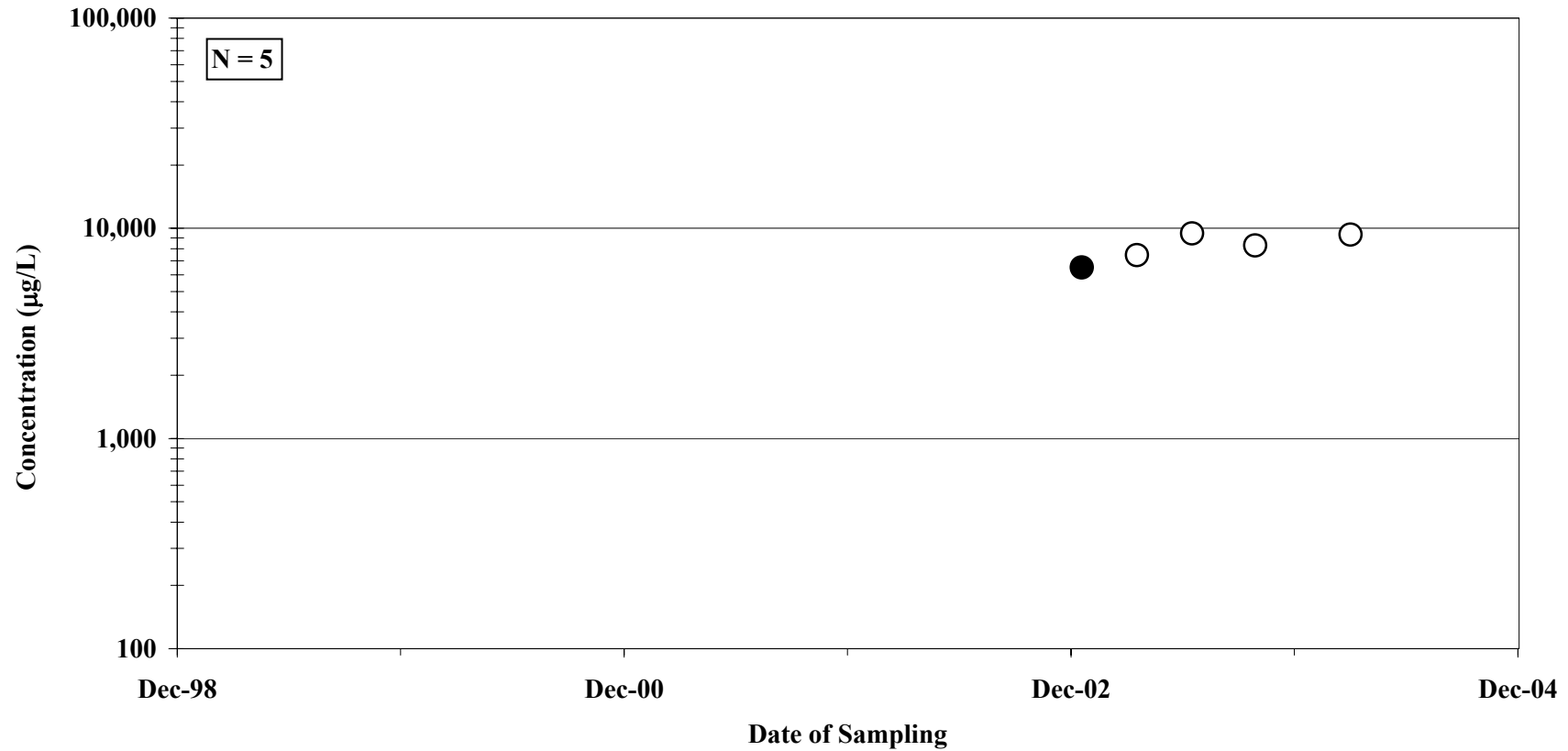


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-71**

**DISSOLVED IRON CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

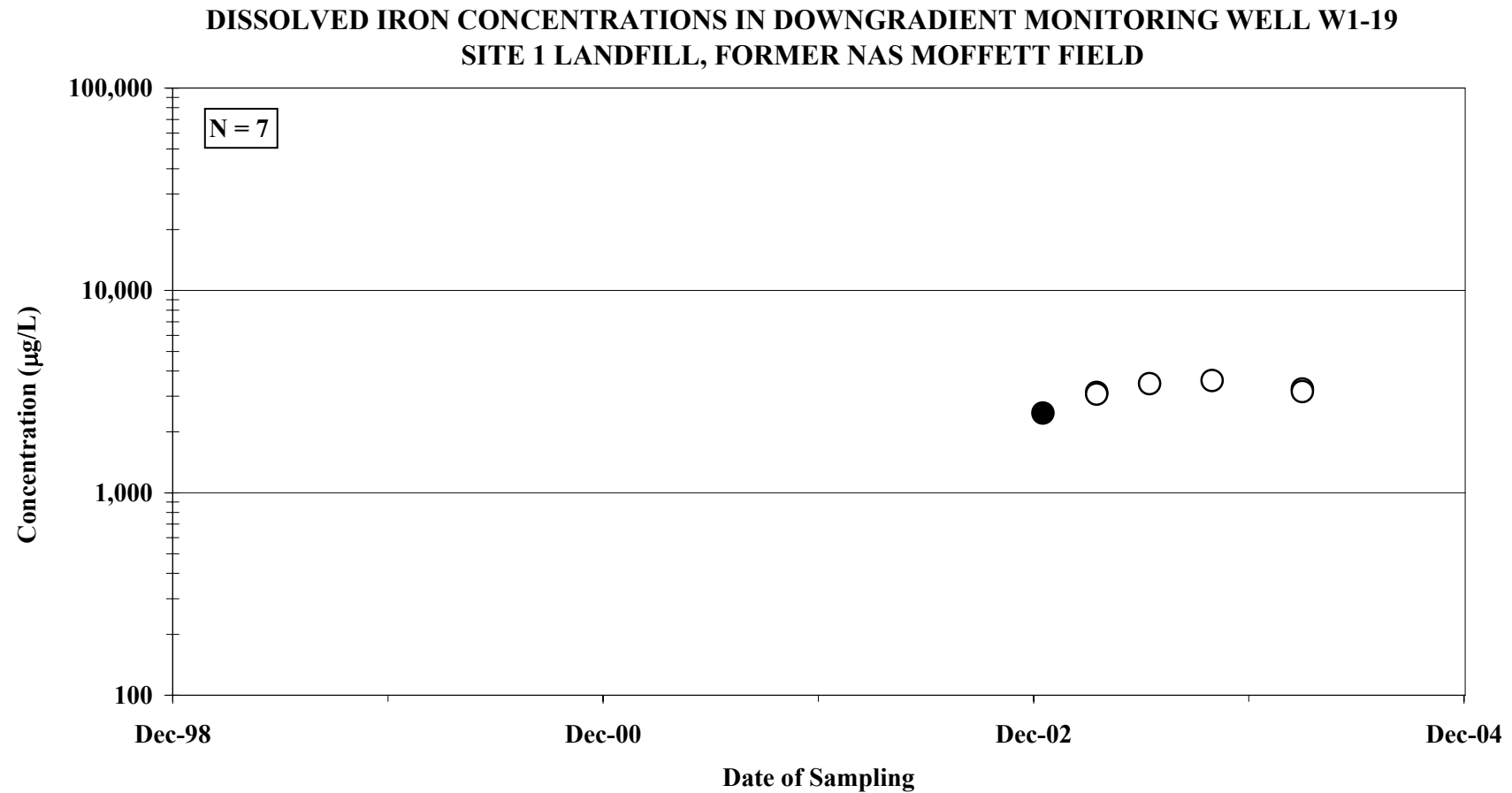


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



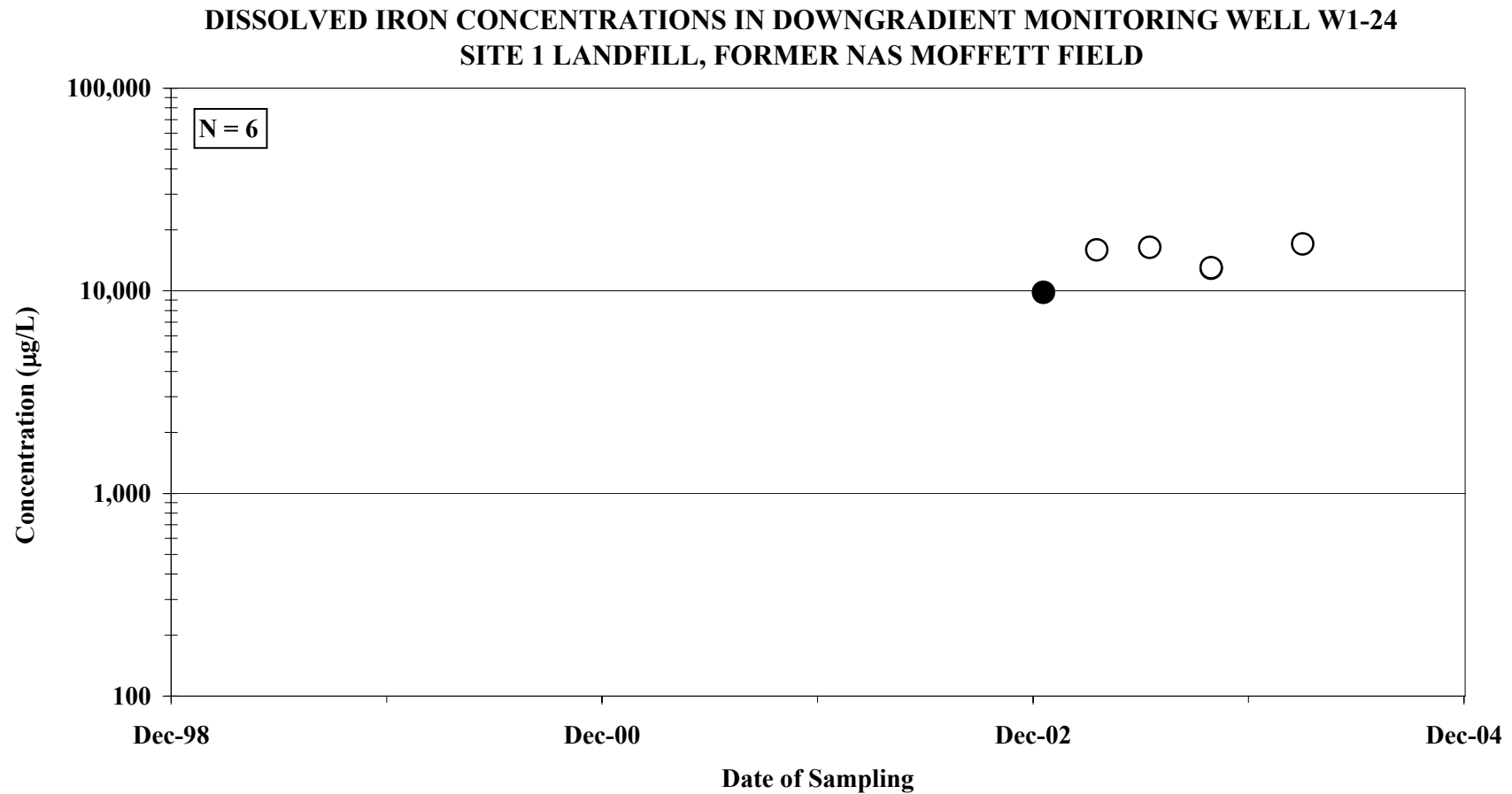
**FIGURE E-72**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-73**

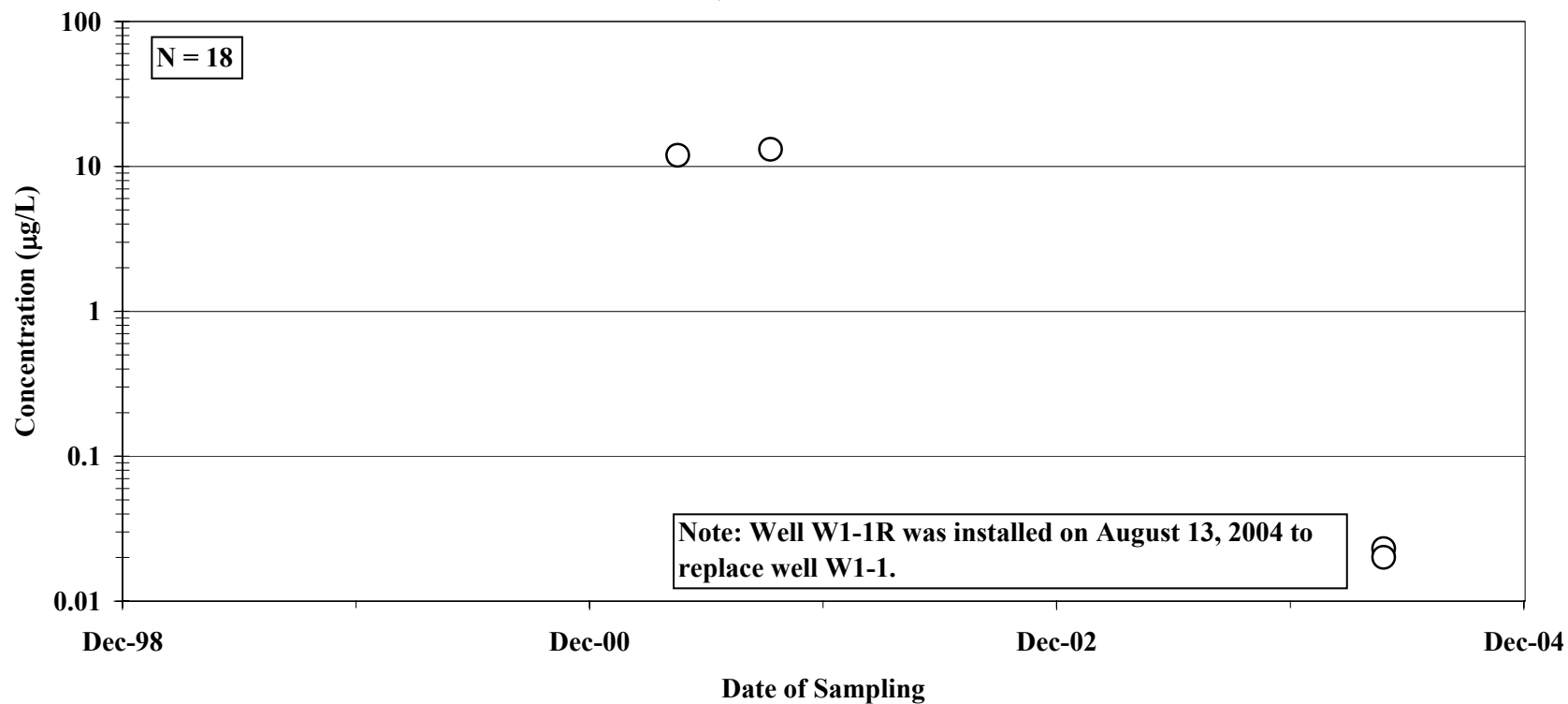


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-74

DISSOLVED LEAD CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD

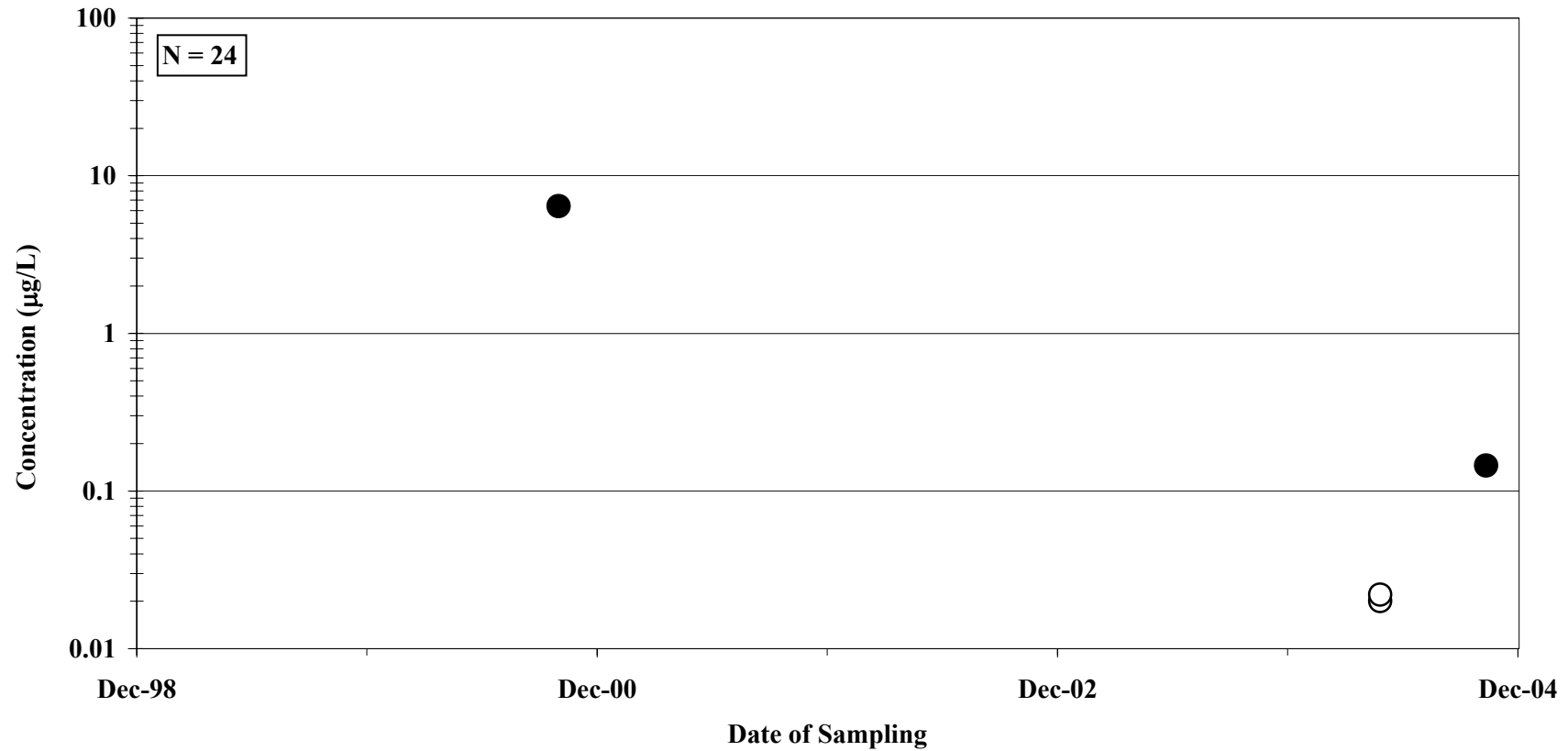


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-75**

**DISSOLVED LEAD CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

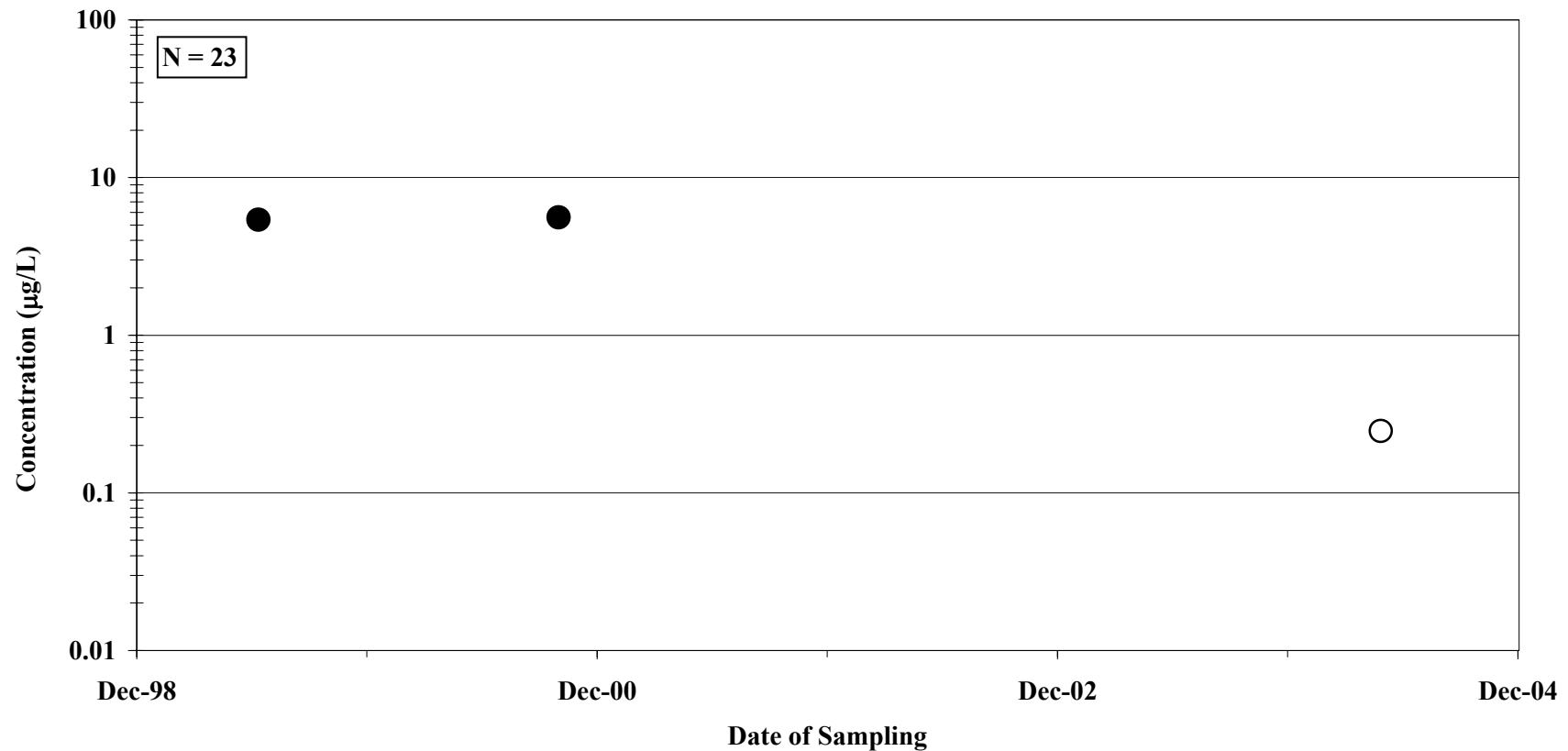


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-76**

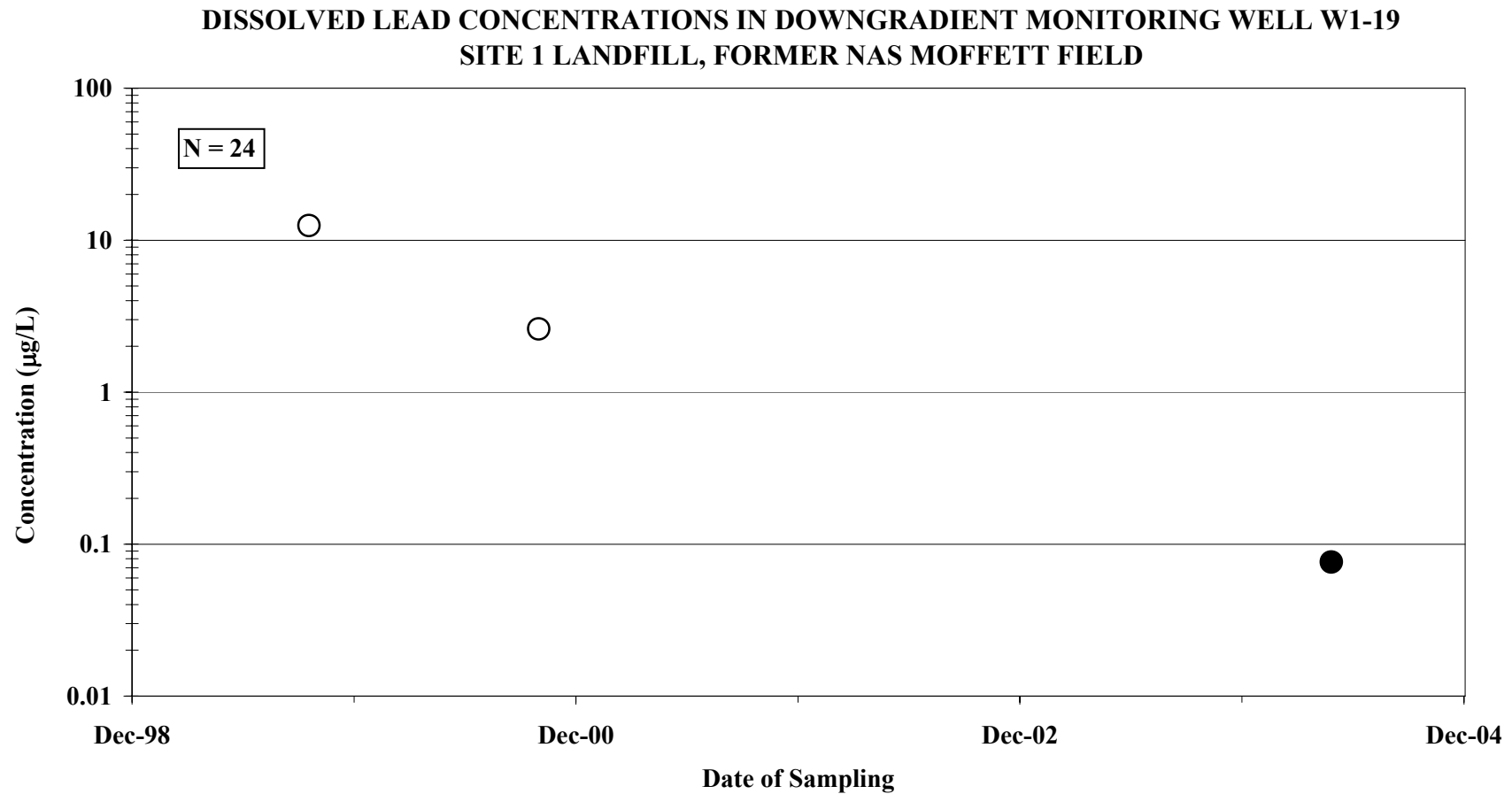
**DISSOLVED LEAD CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-77**

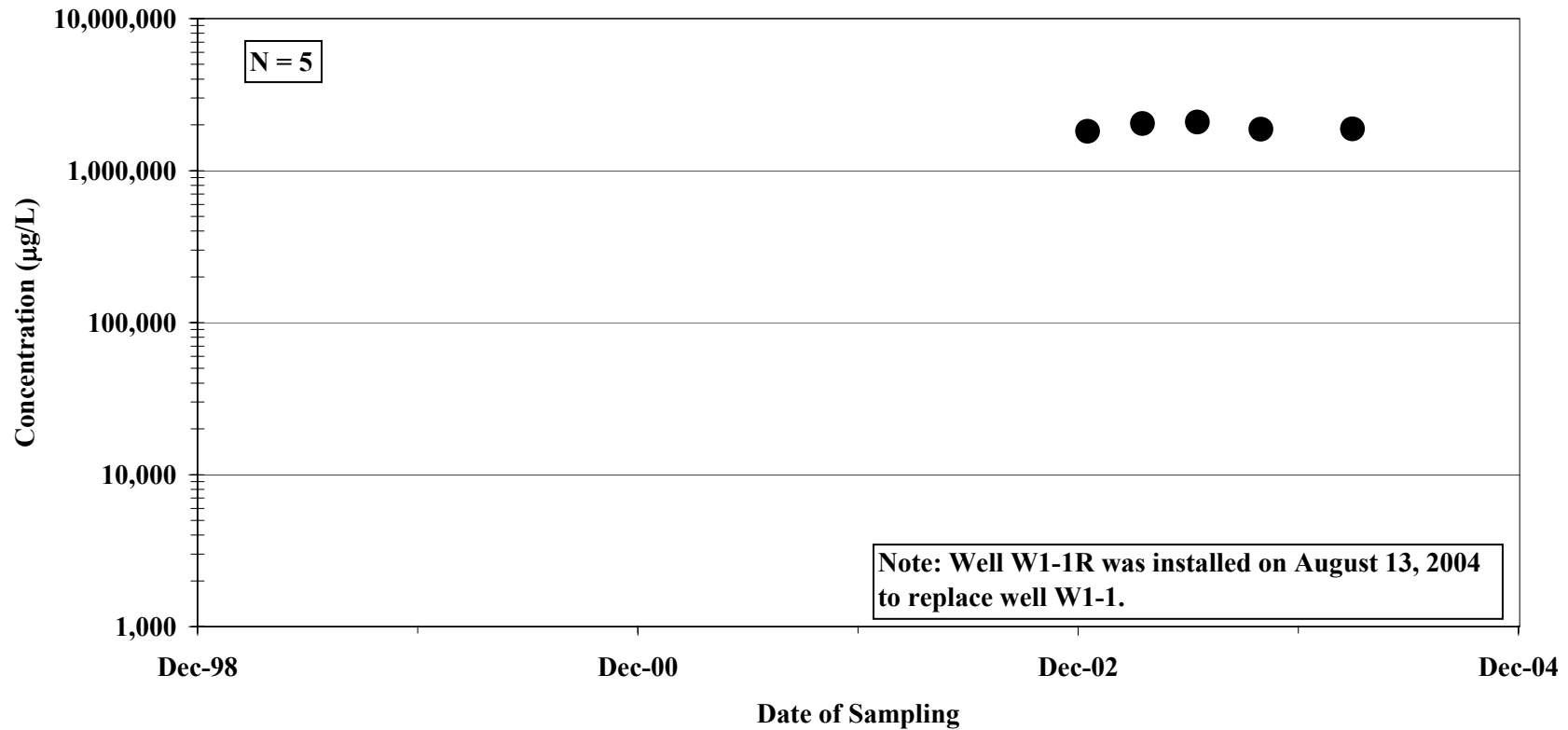


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-78**

**DISSOLVED MAGNESIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

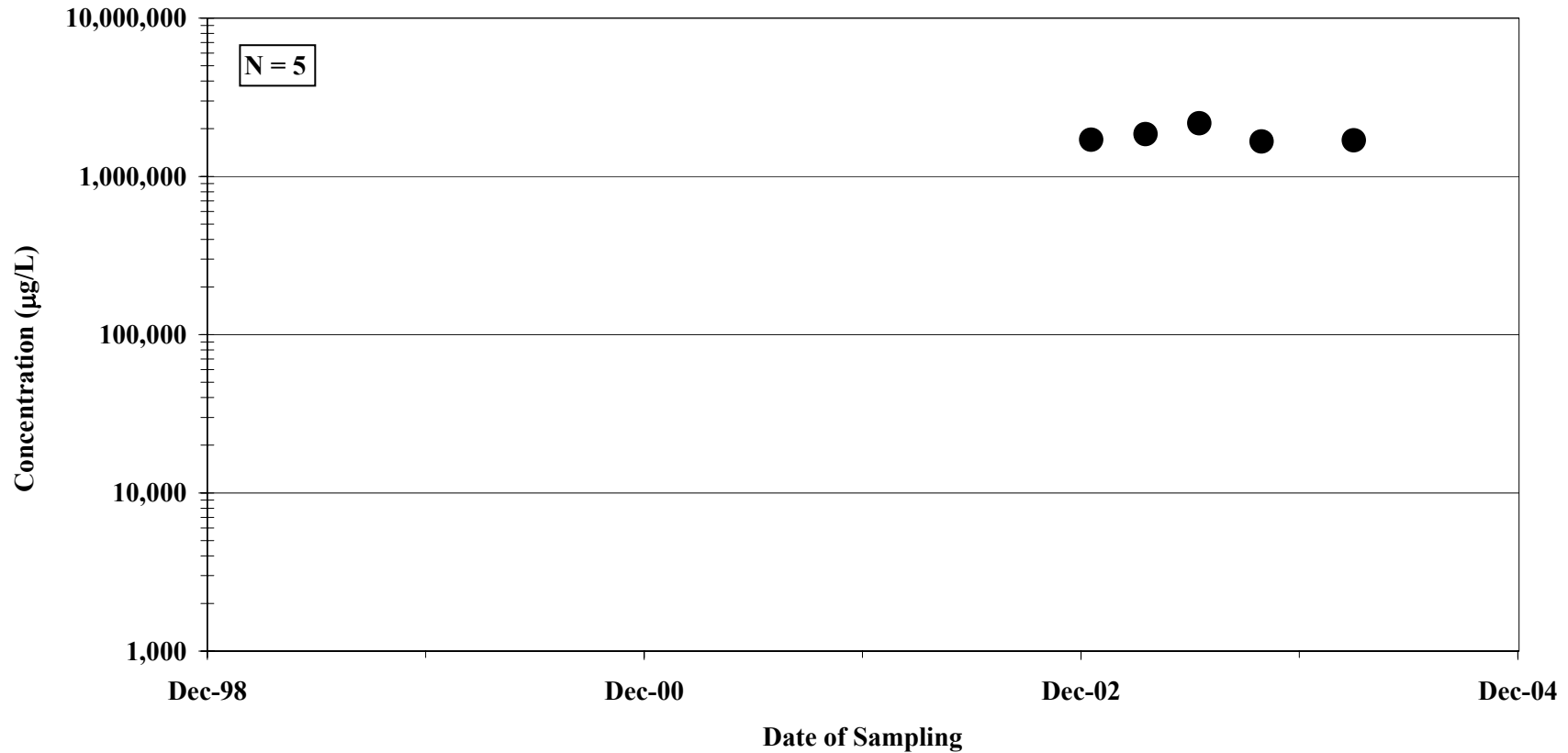


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-79**

**DISSOLVED MAGNESIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



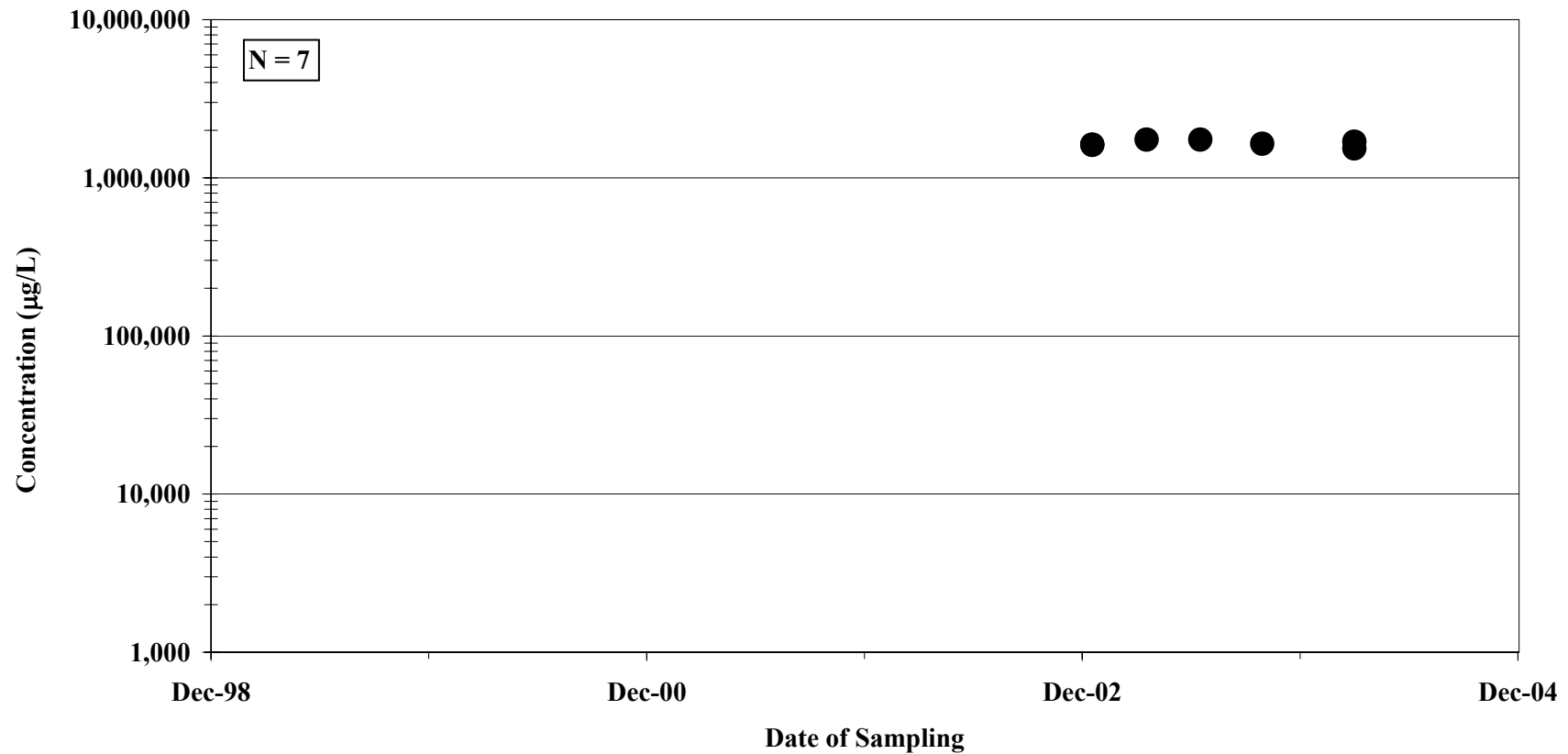
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-80**

**DISSOLVED MAGNESIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

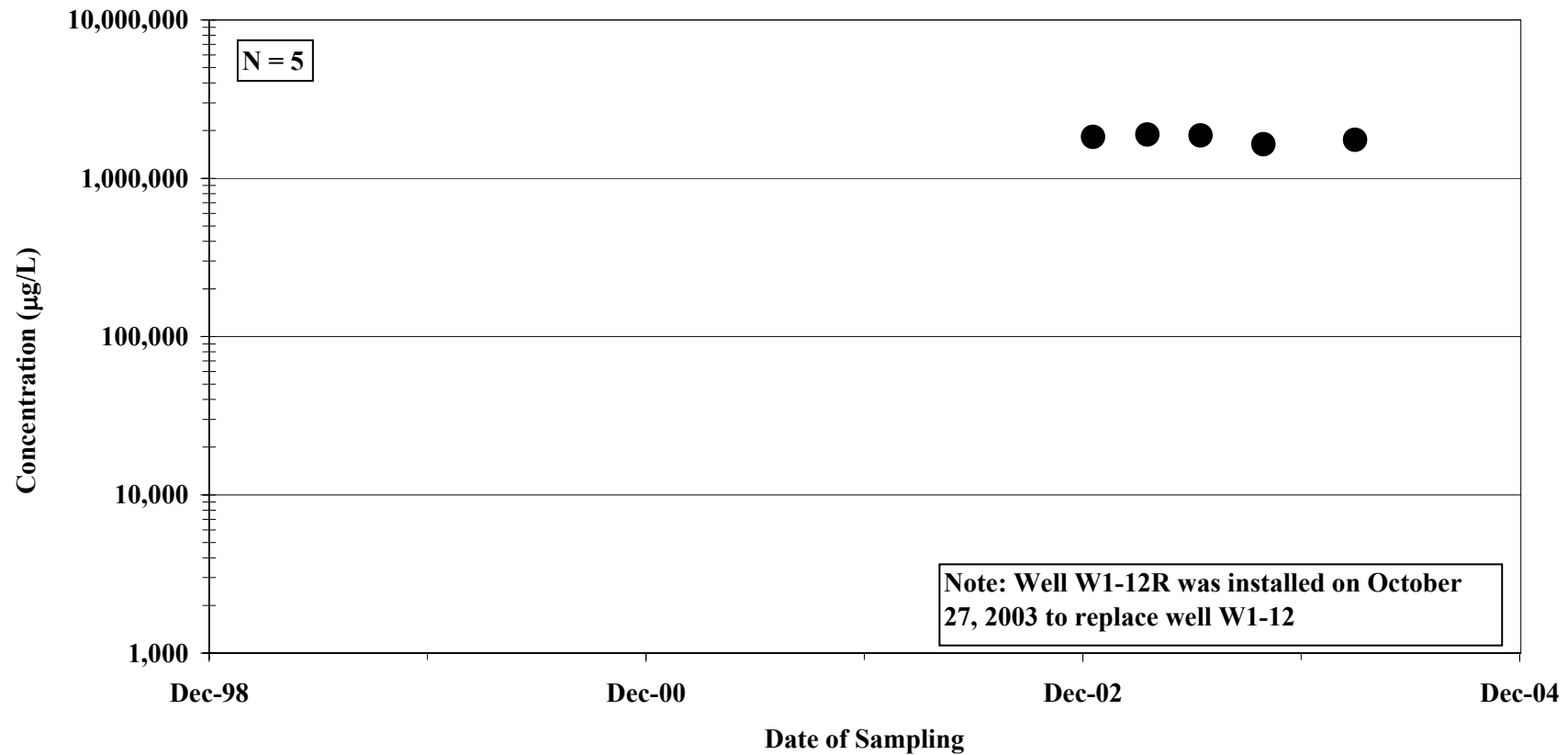


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-81**

**DISSOLVED MAGNESIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

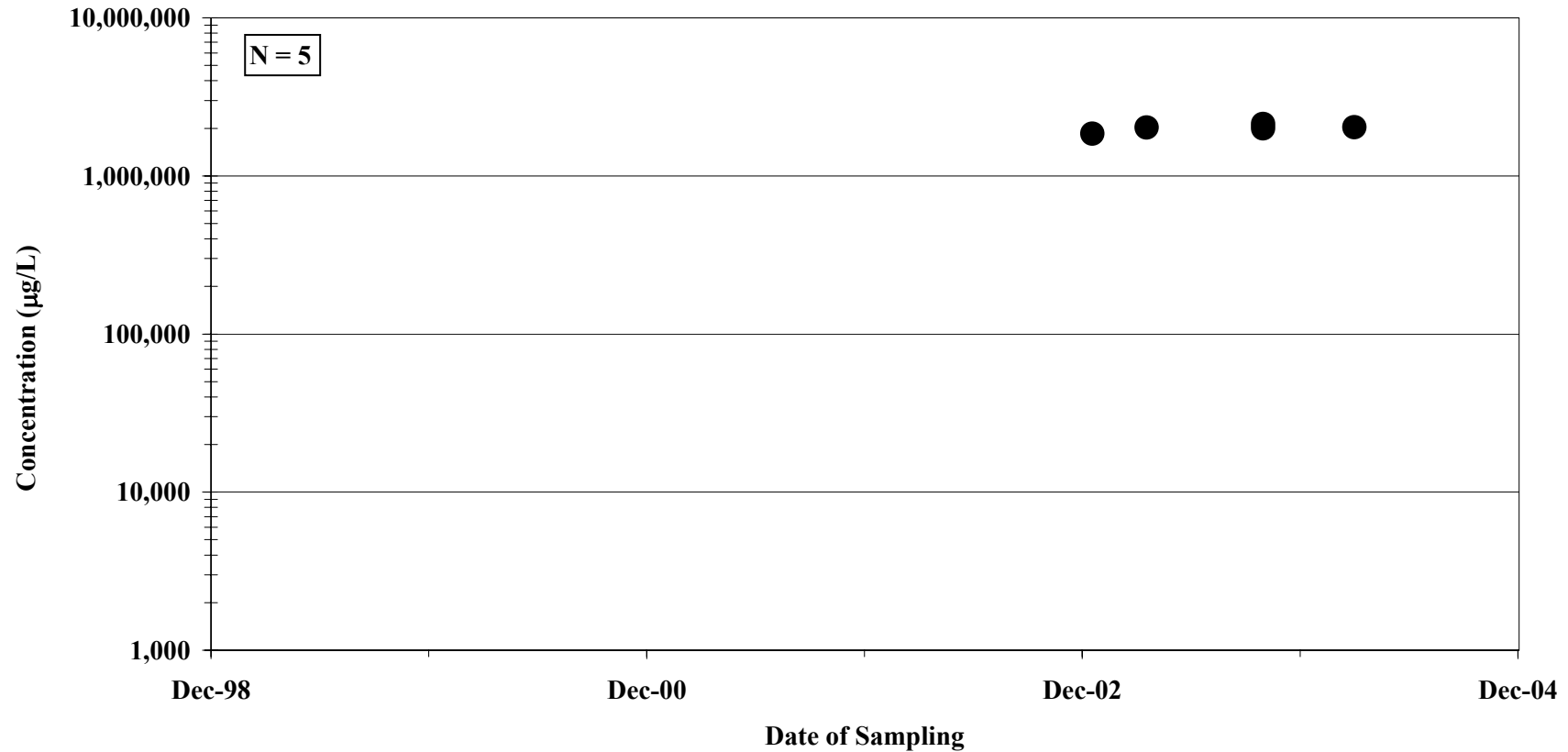


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-82**

**DISSOLVED MAGNESIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

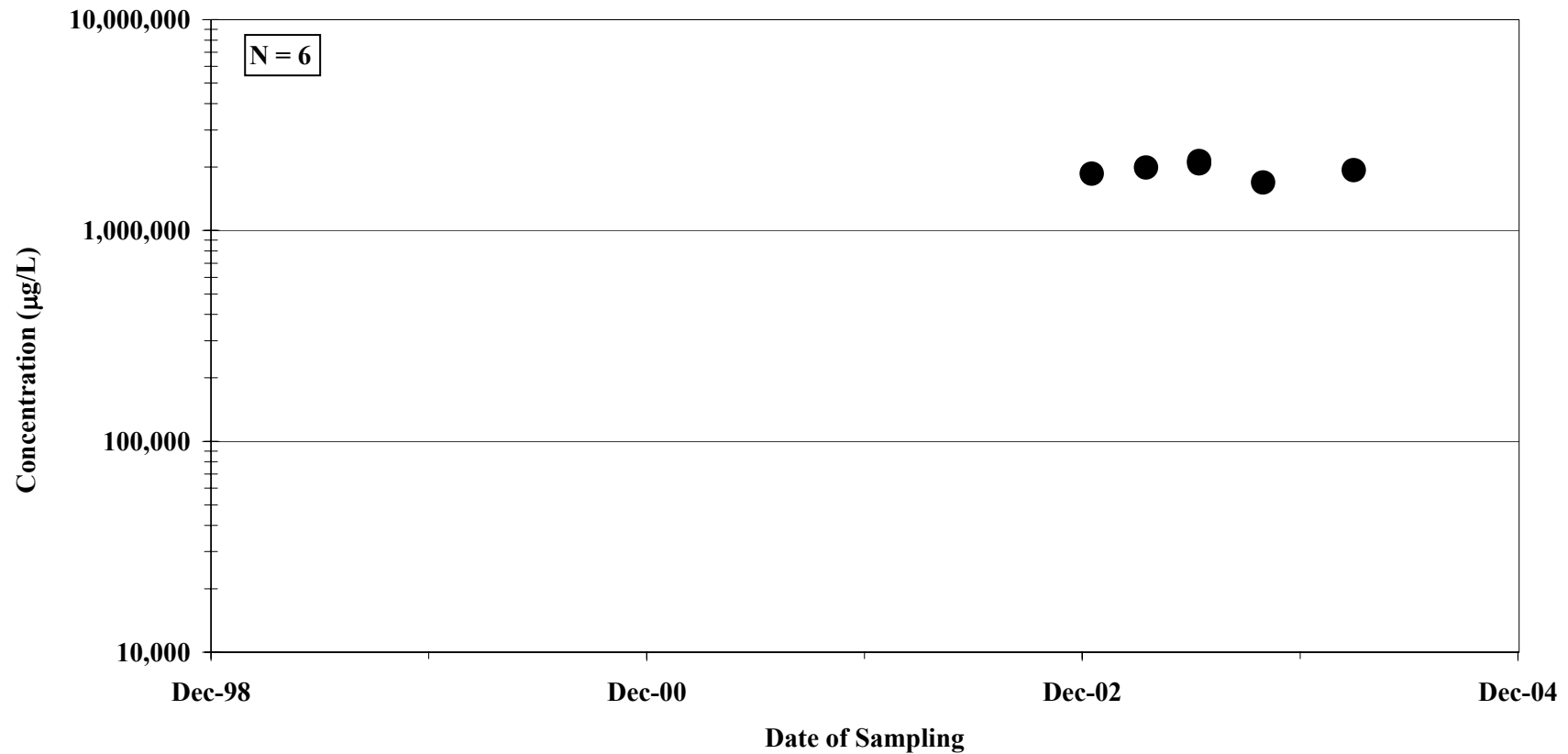


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-83**

**DISSOLVED MAGNESIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

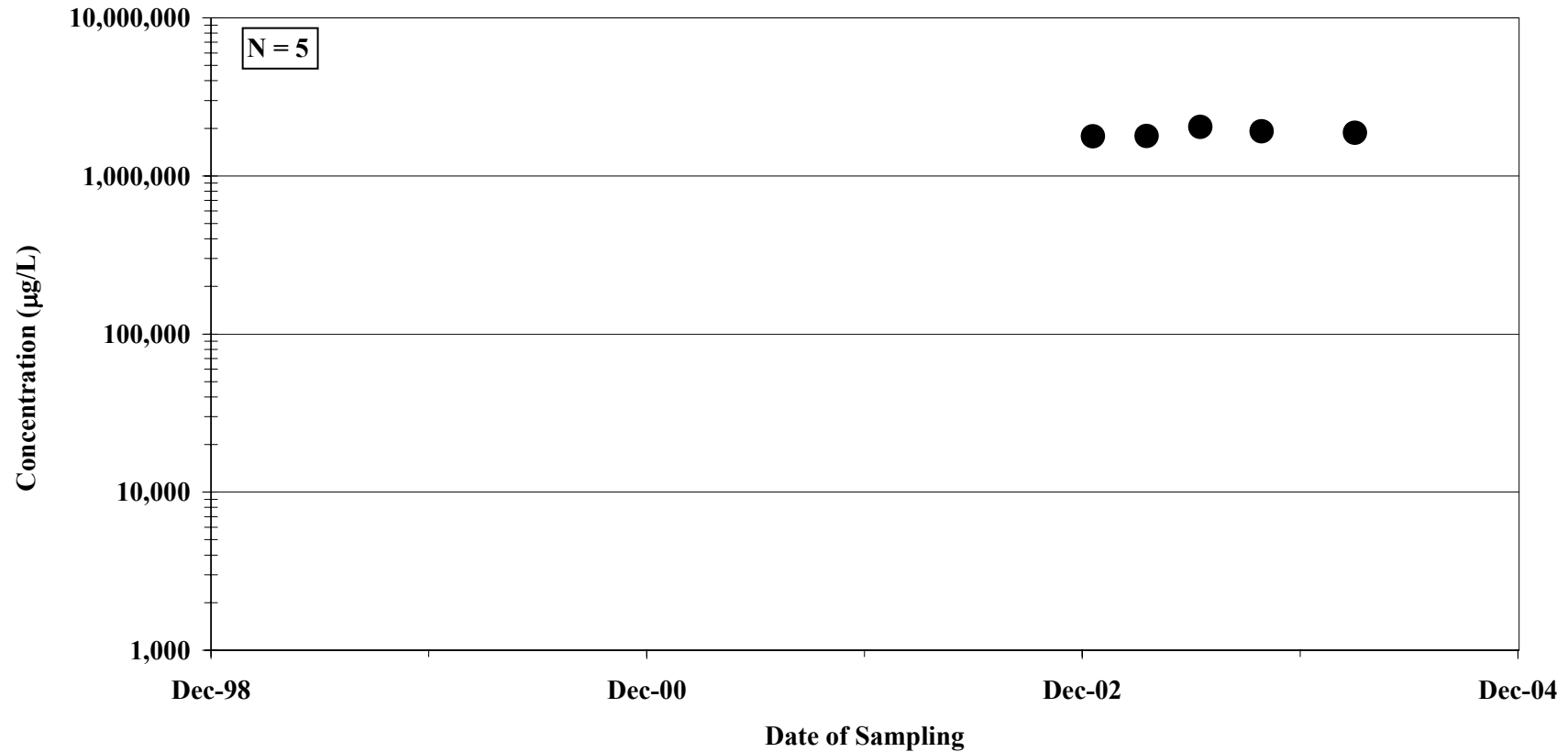


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-84**

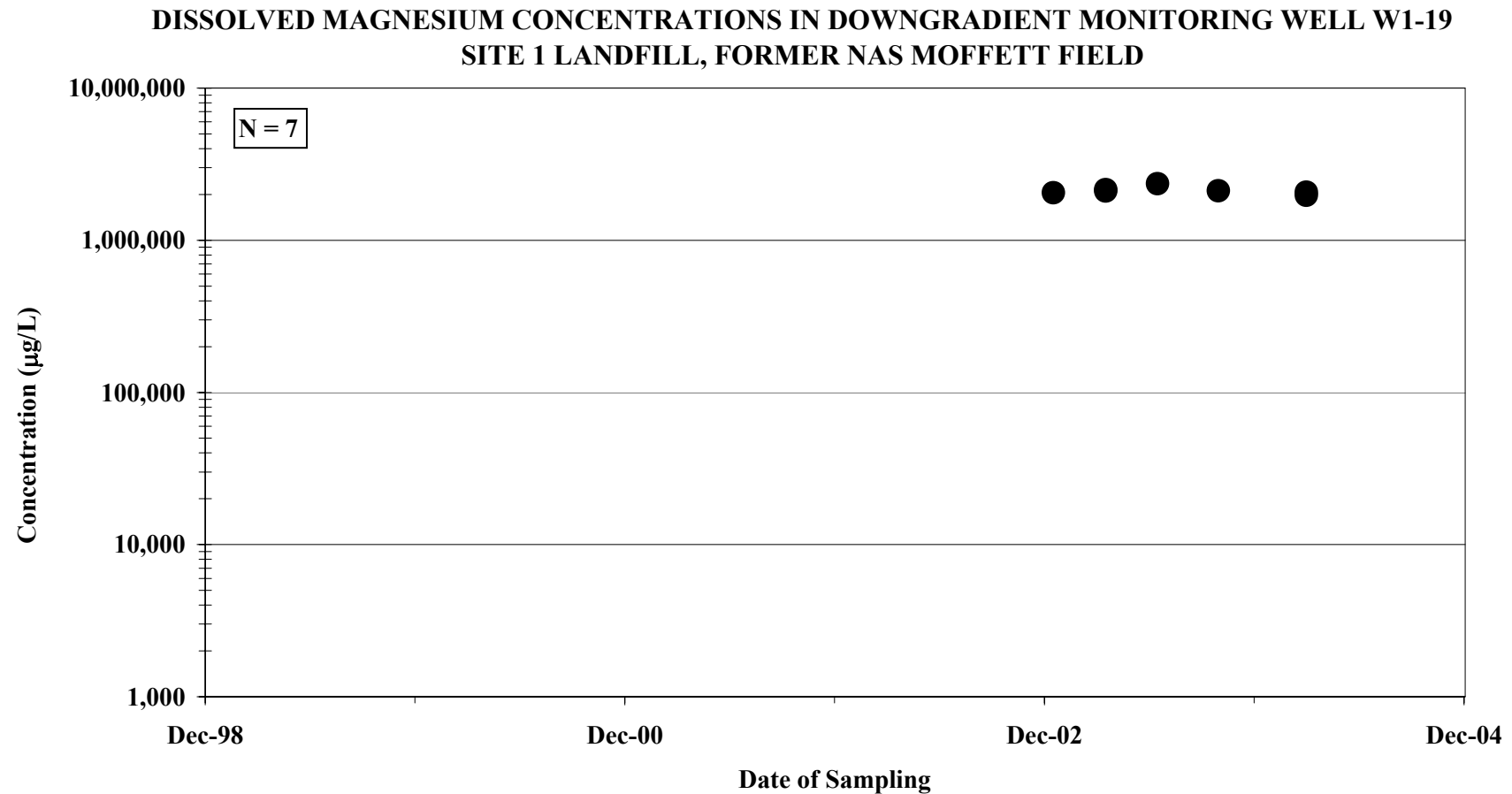
**DISSOLVED MAGNESIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-85**

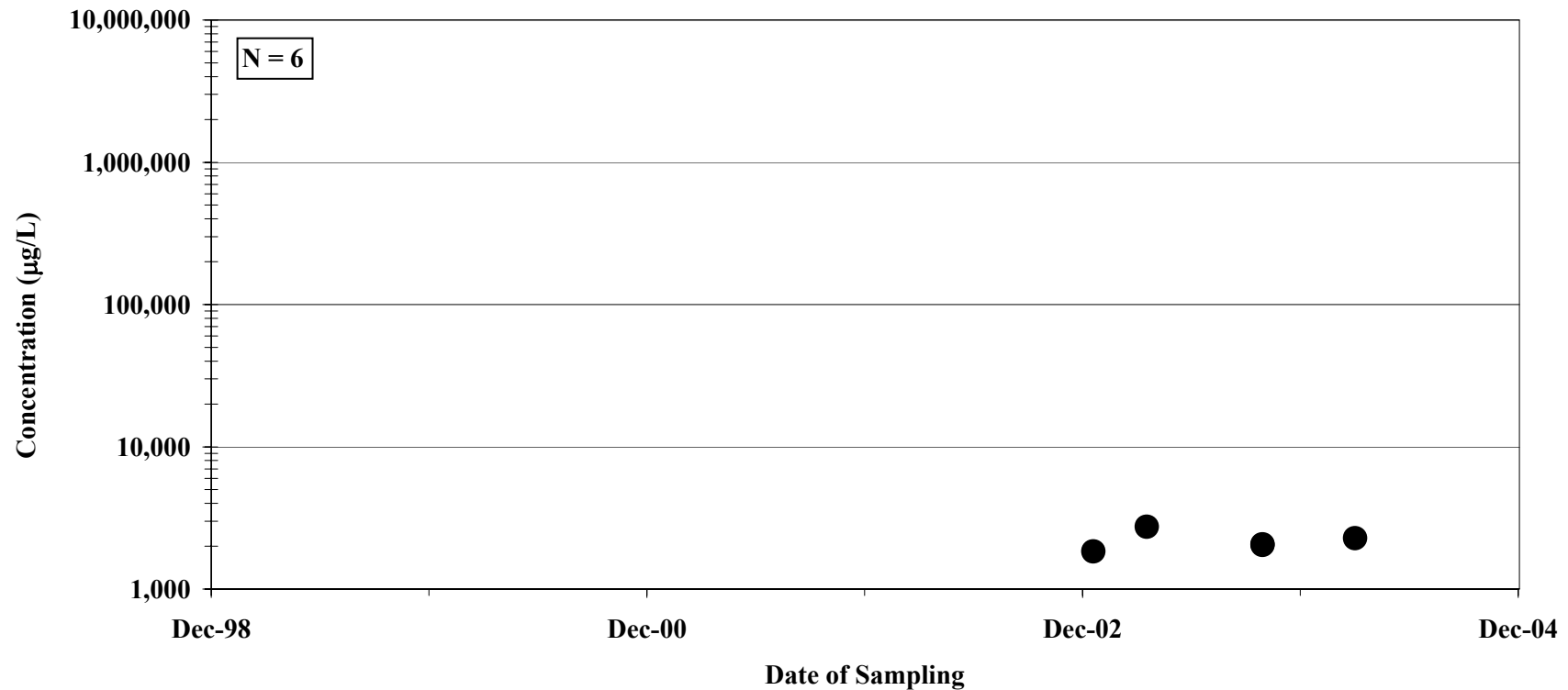


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-86**

**DISSOLVED MAGNESIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

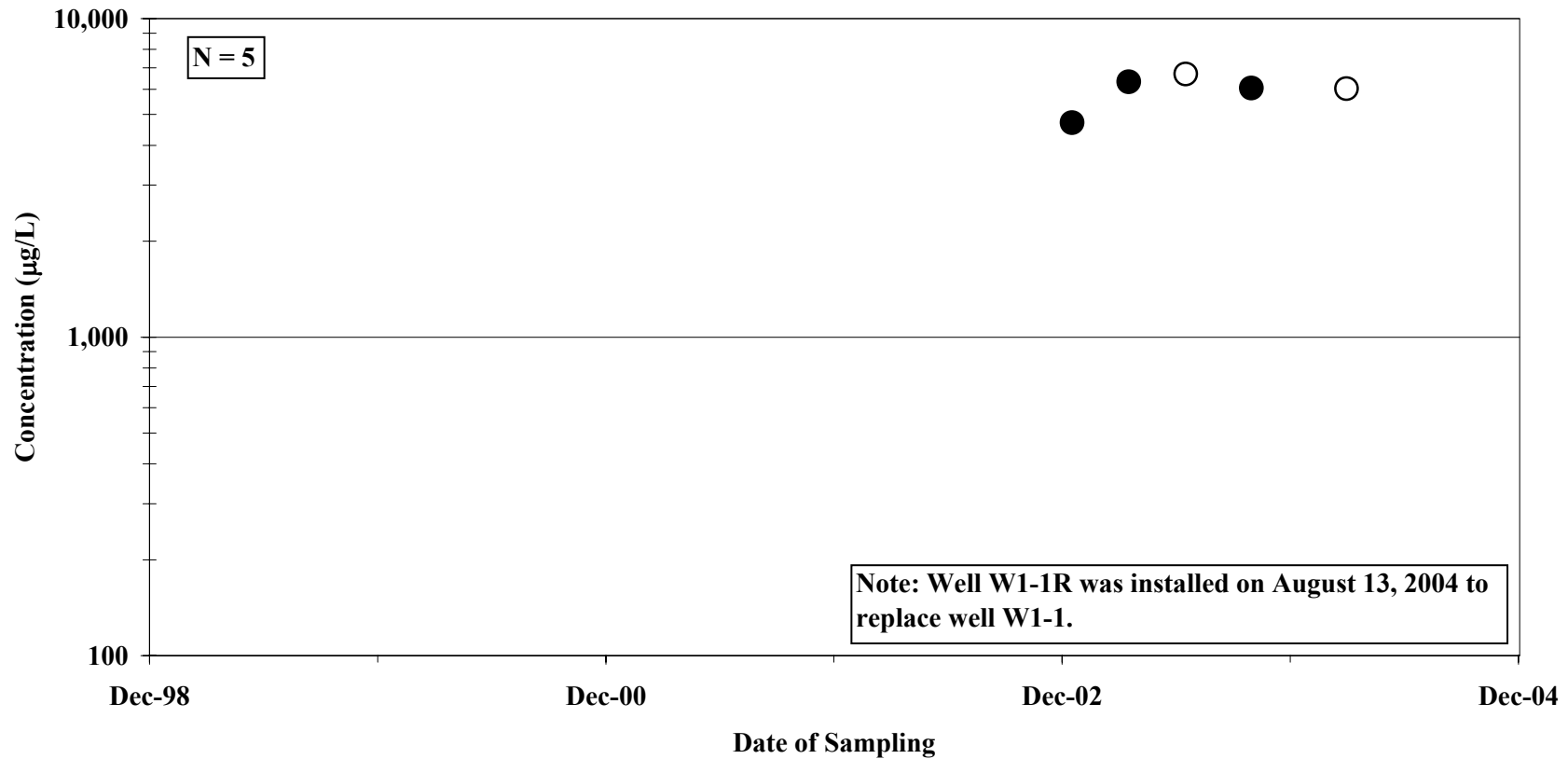


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-87**

**DISSOLVED MANGANESE CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



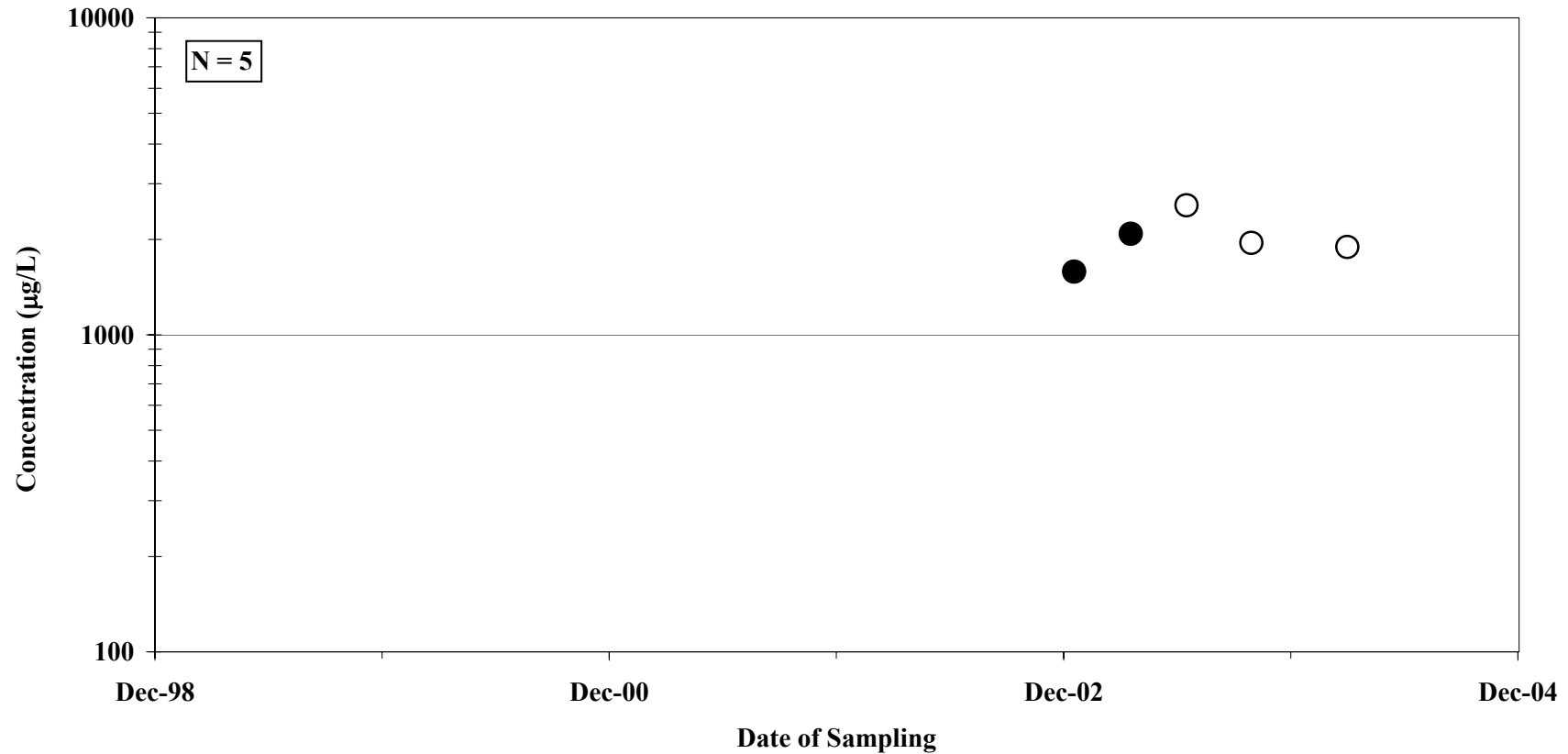
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-88**

**DISSOLVED MANGANESE CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

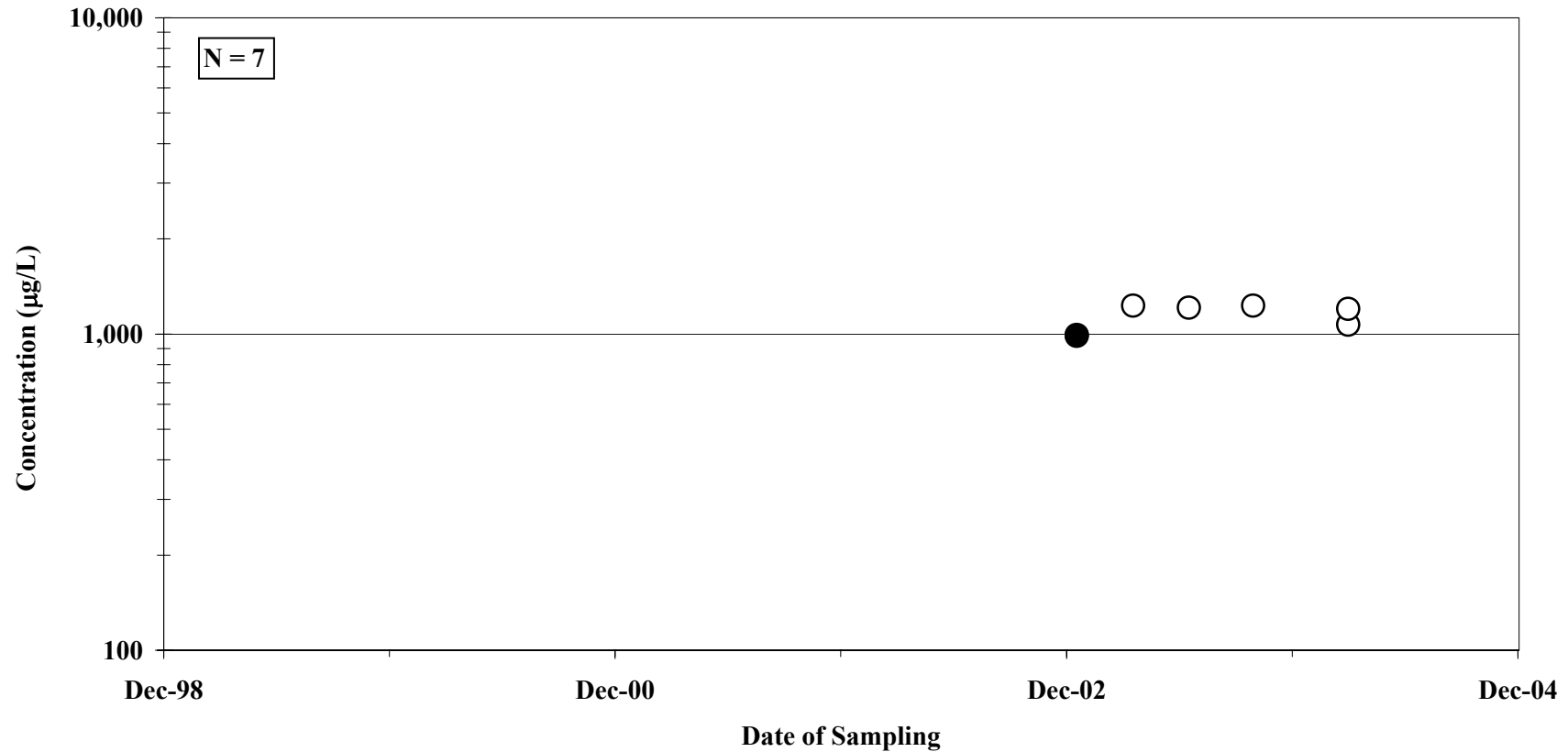


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-89**

**DISSOLVED MANGANESE CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

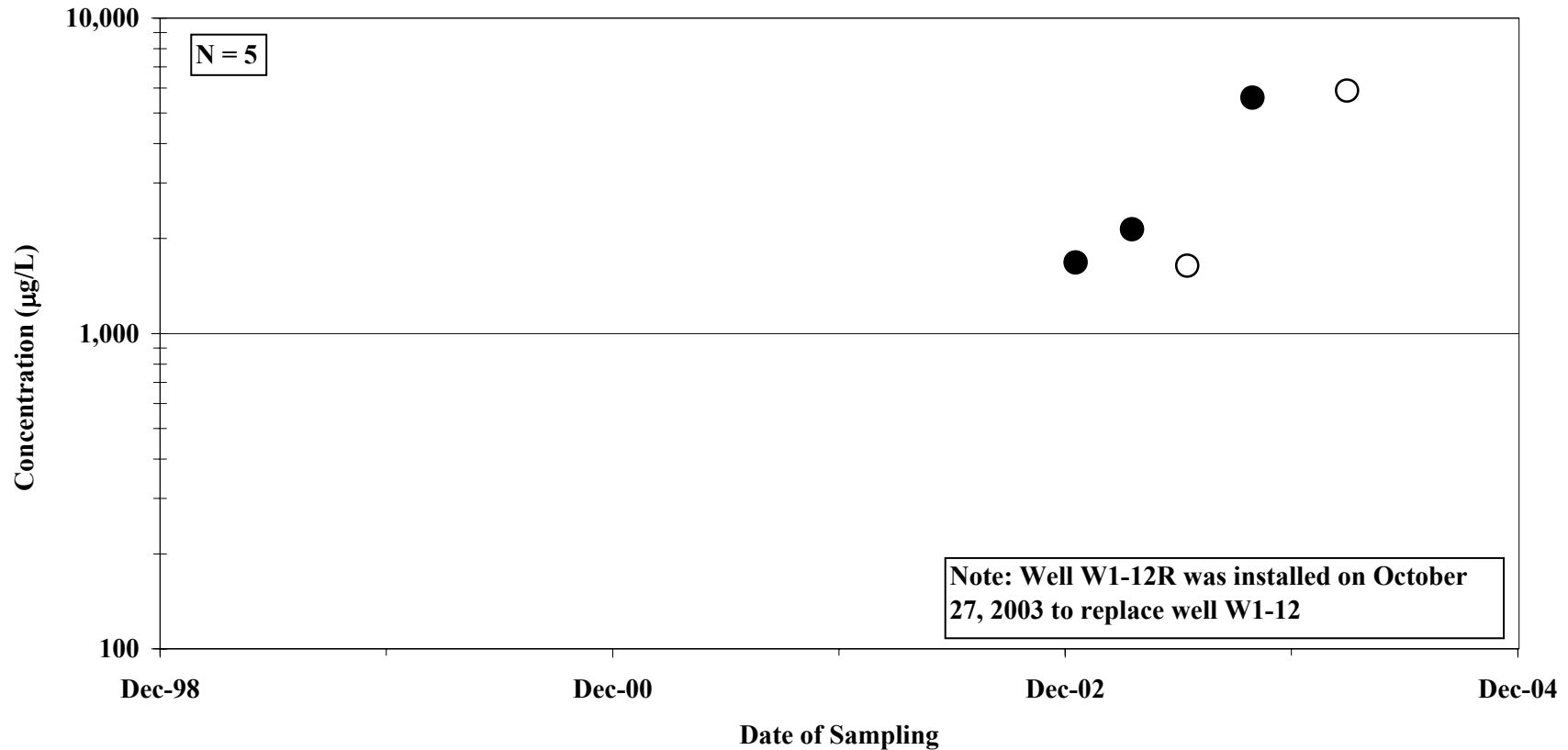


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-90**

**DISSOLVED MANGANESE CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

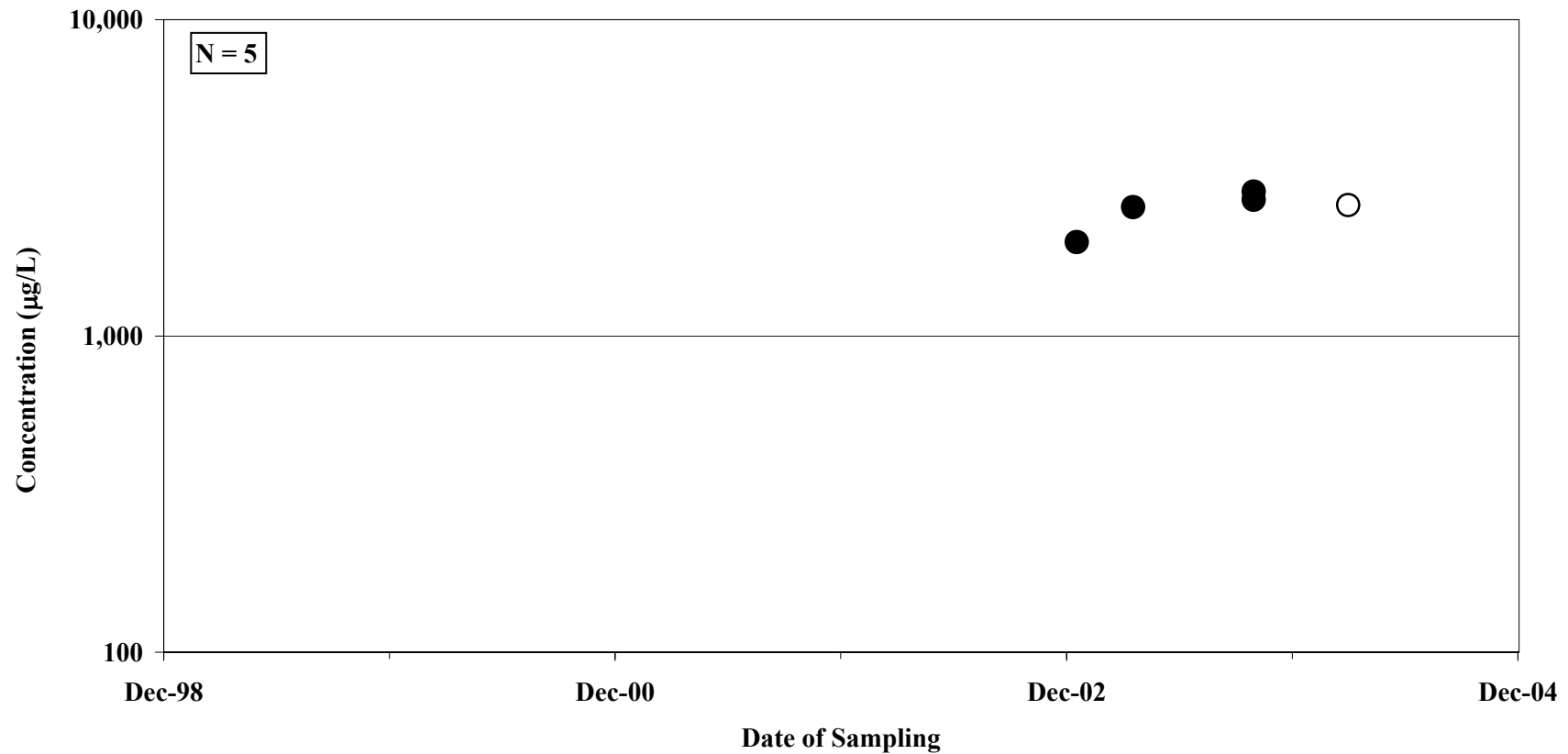


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-91**

**DISSOLVED MANGANESE CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

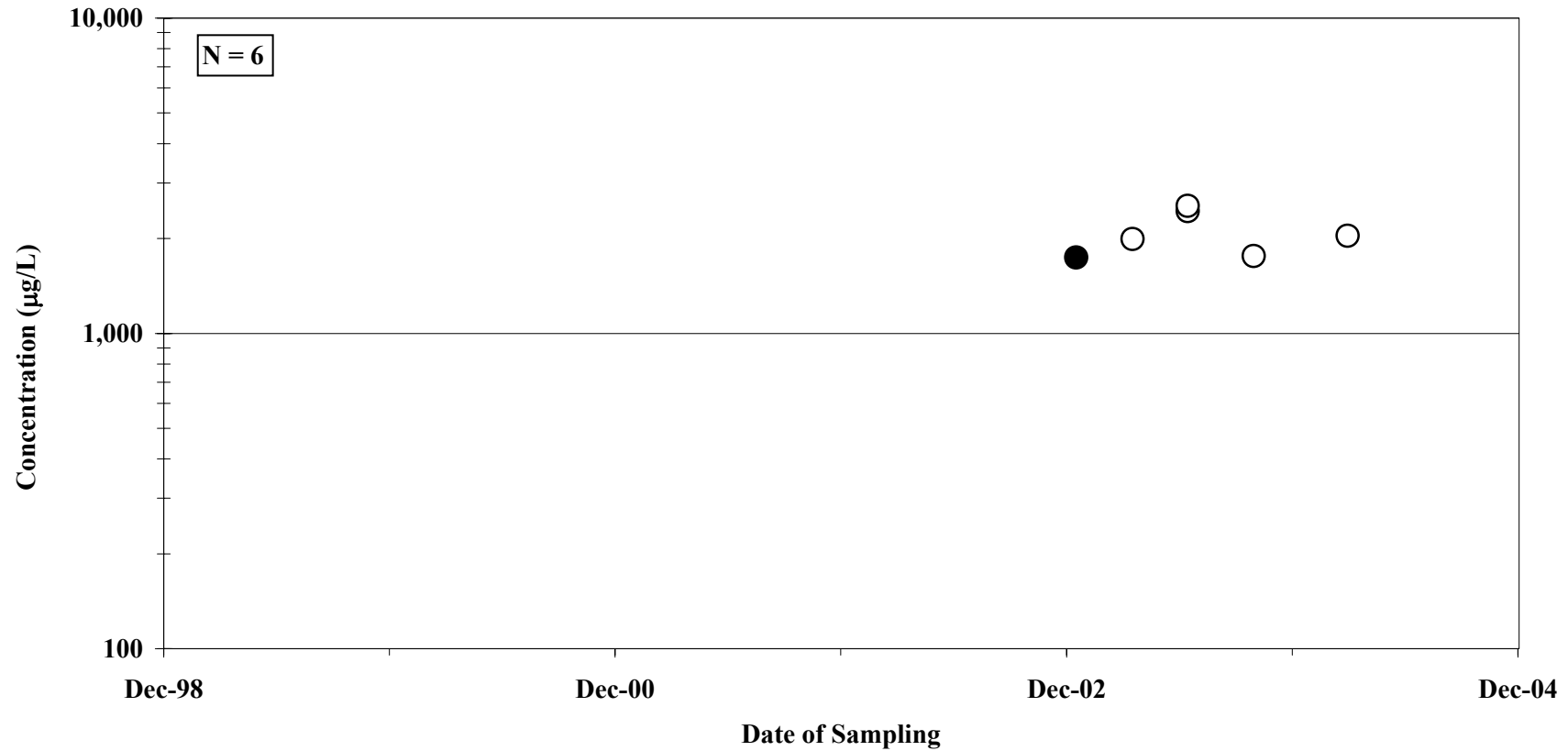


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-92**

**DISSOLVED MANGANESE CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

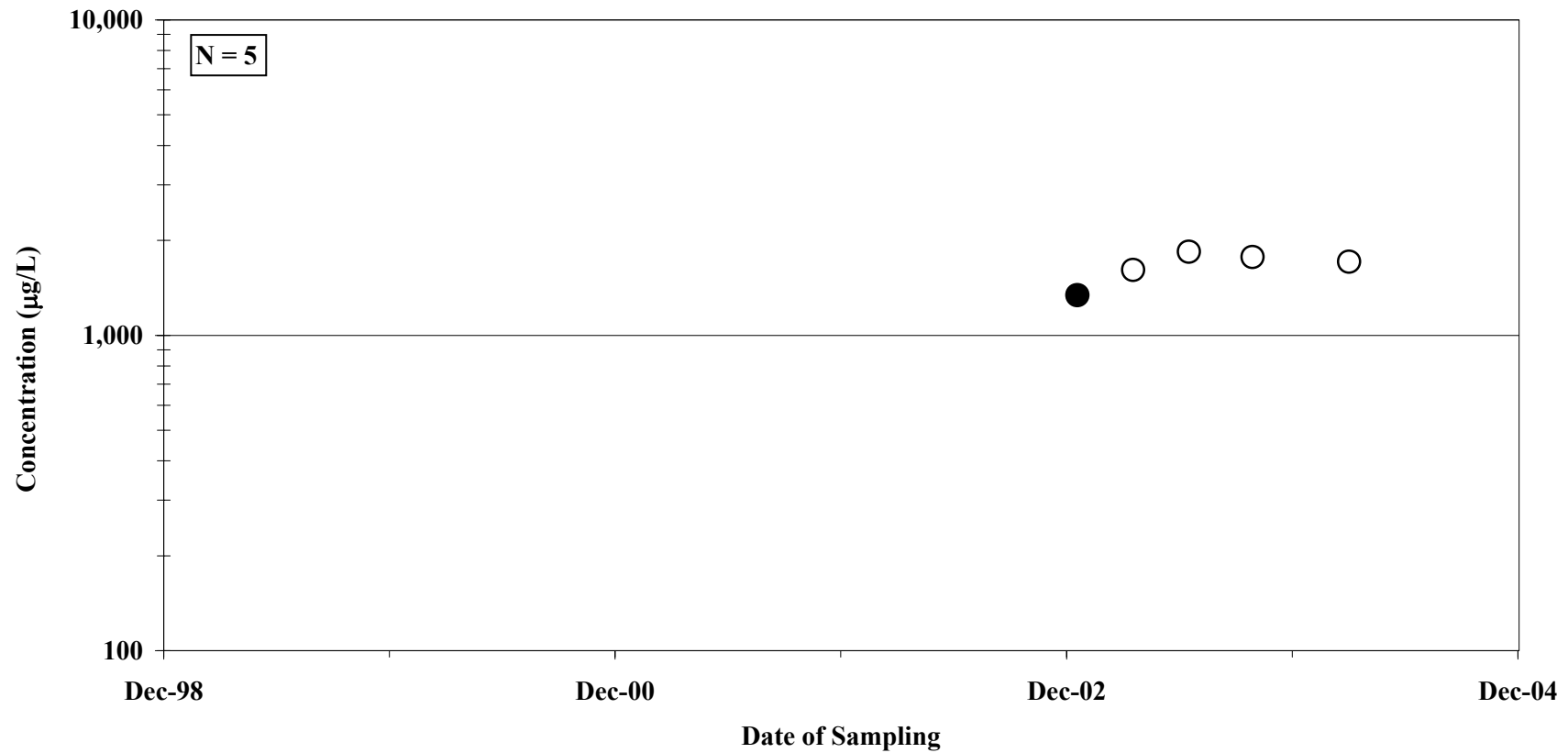


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-93**

**DISSOLVED MANGANESE CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

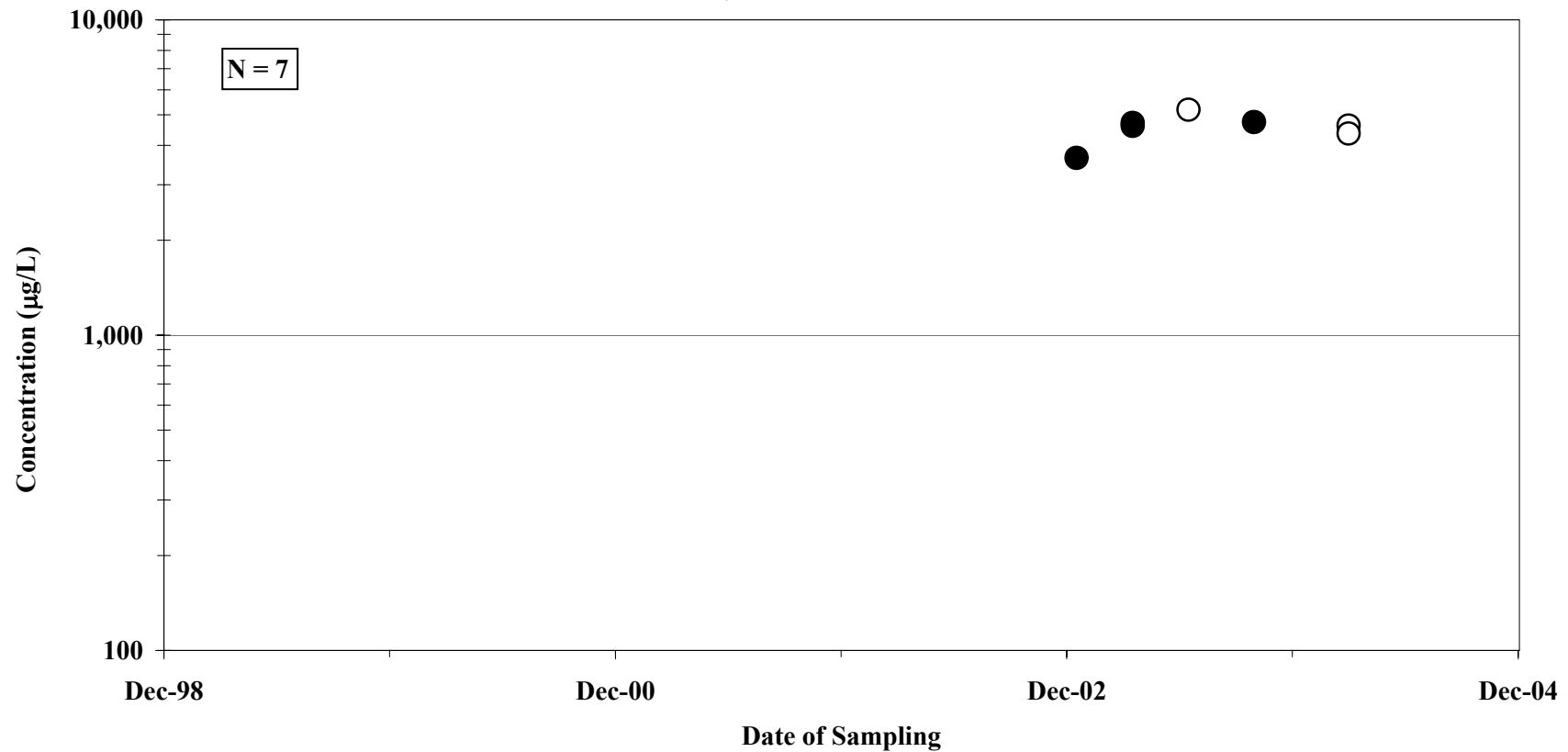


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-94**

**DISSOLVED MANGANESE CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

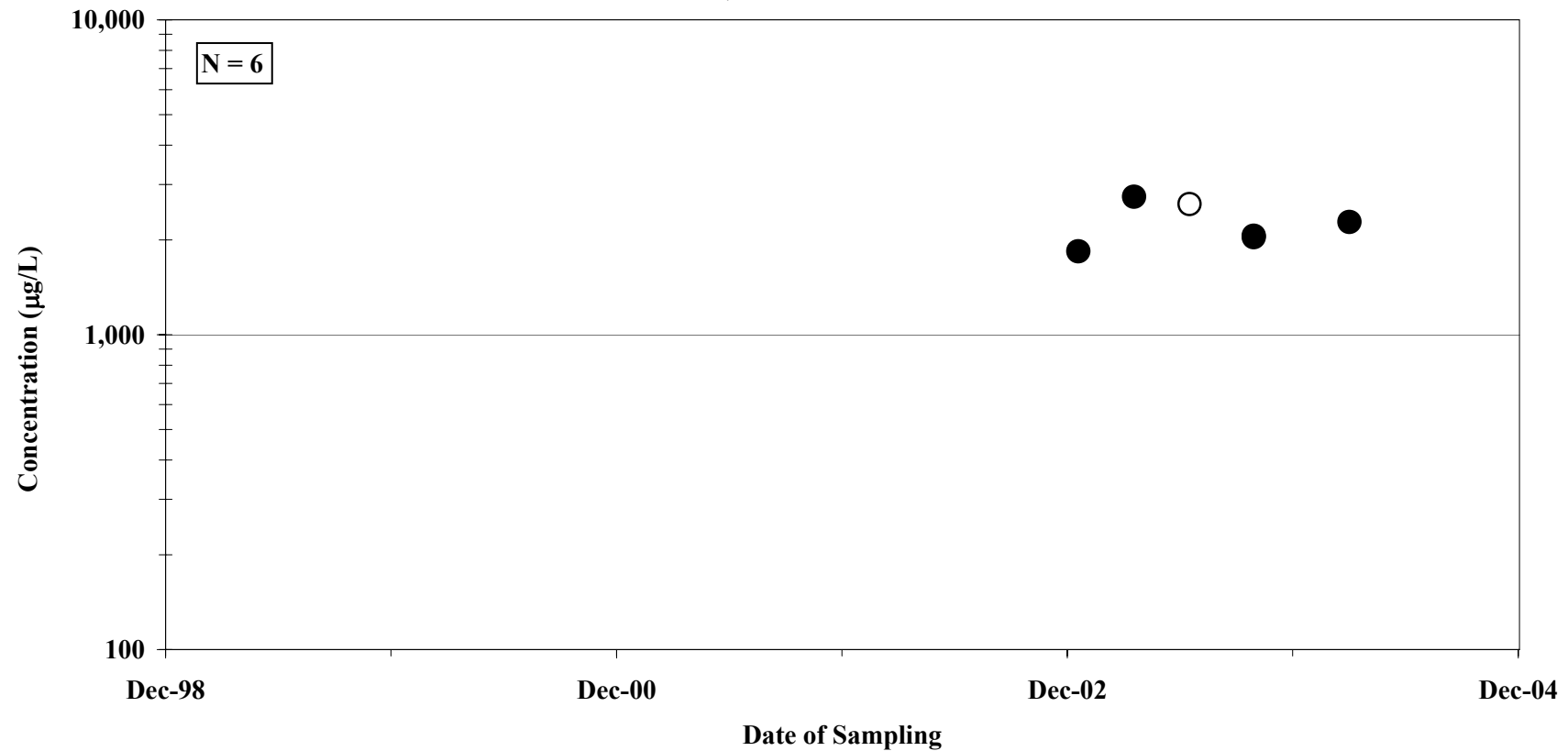


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-95**

**DISSOLVED MANGANESE CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



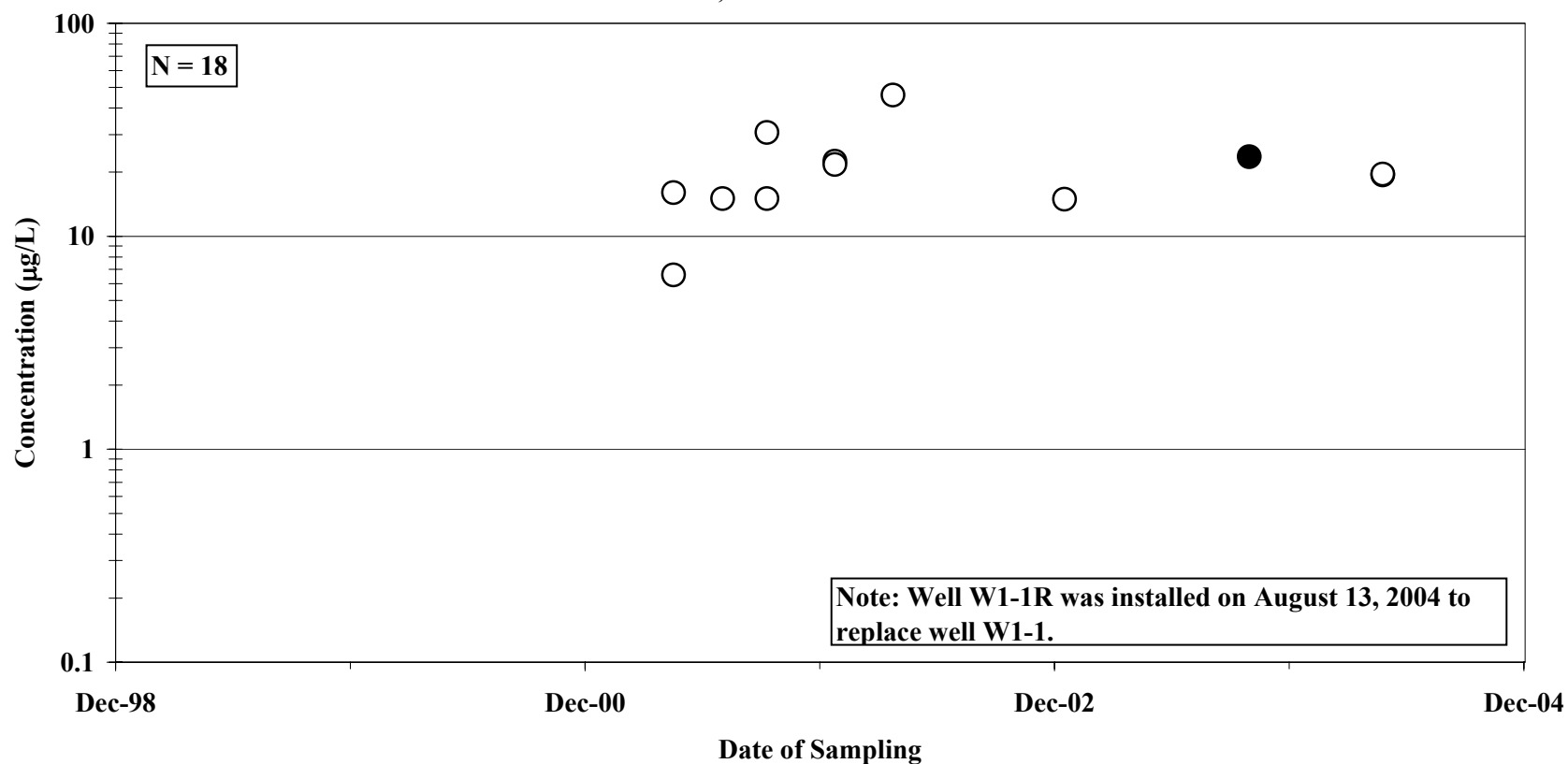
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-96**

**DISSOLVED NICKEL CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

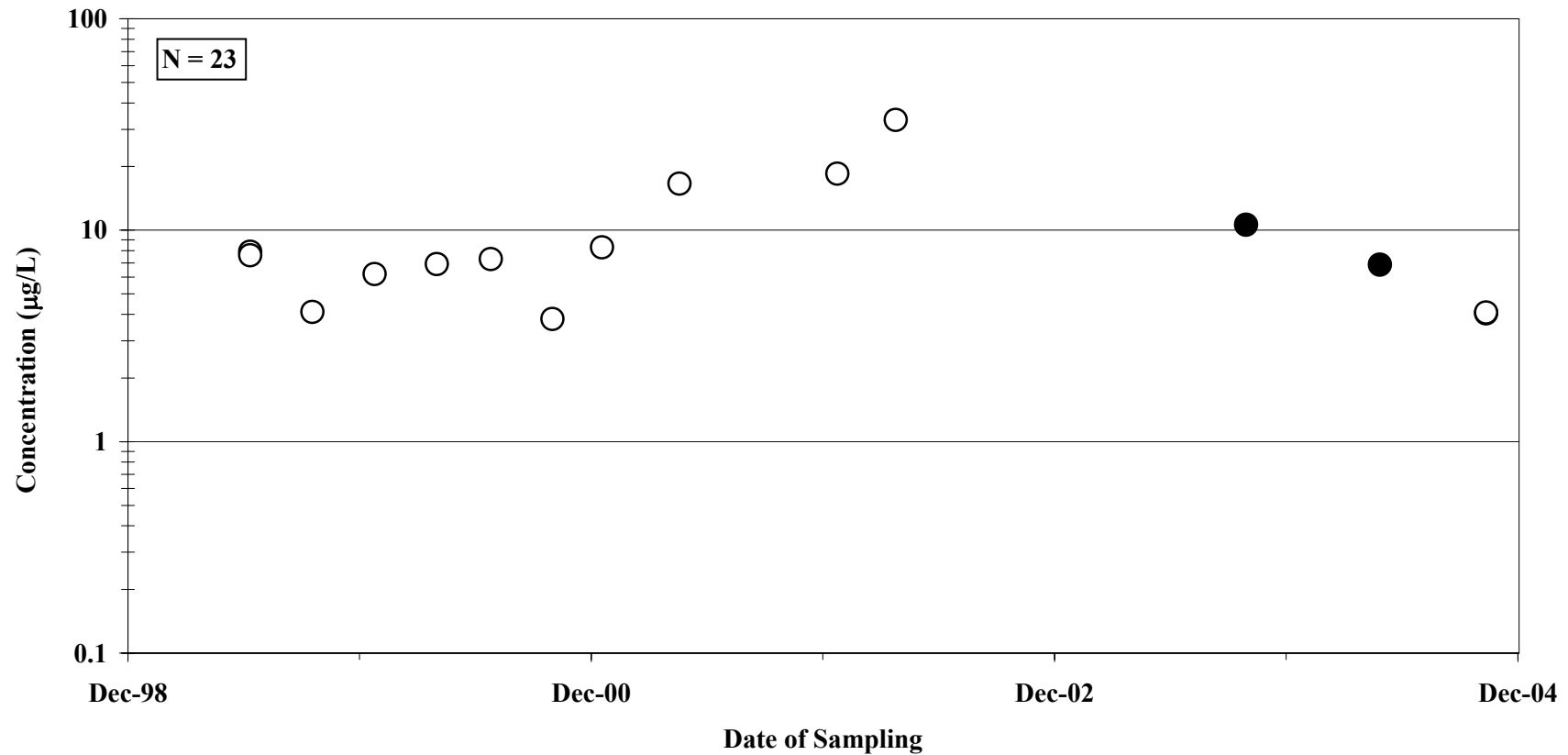


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-97**

**DISSOLVED ANTIMONY CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

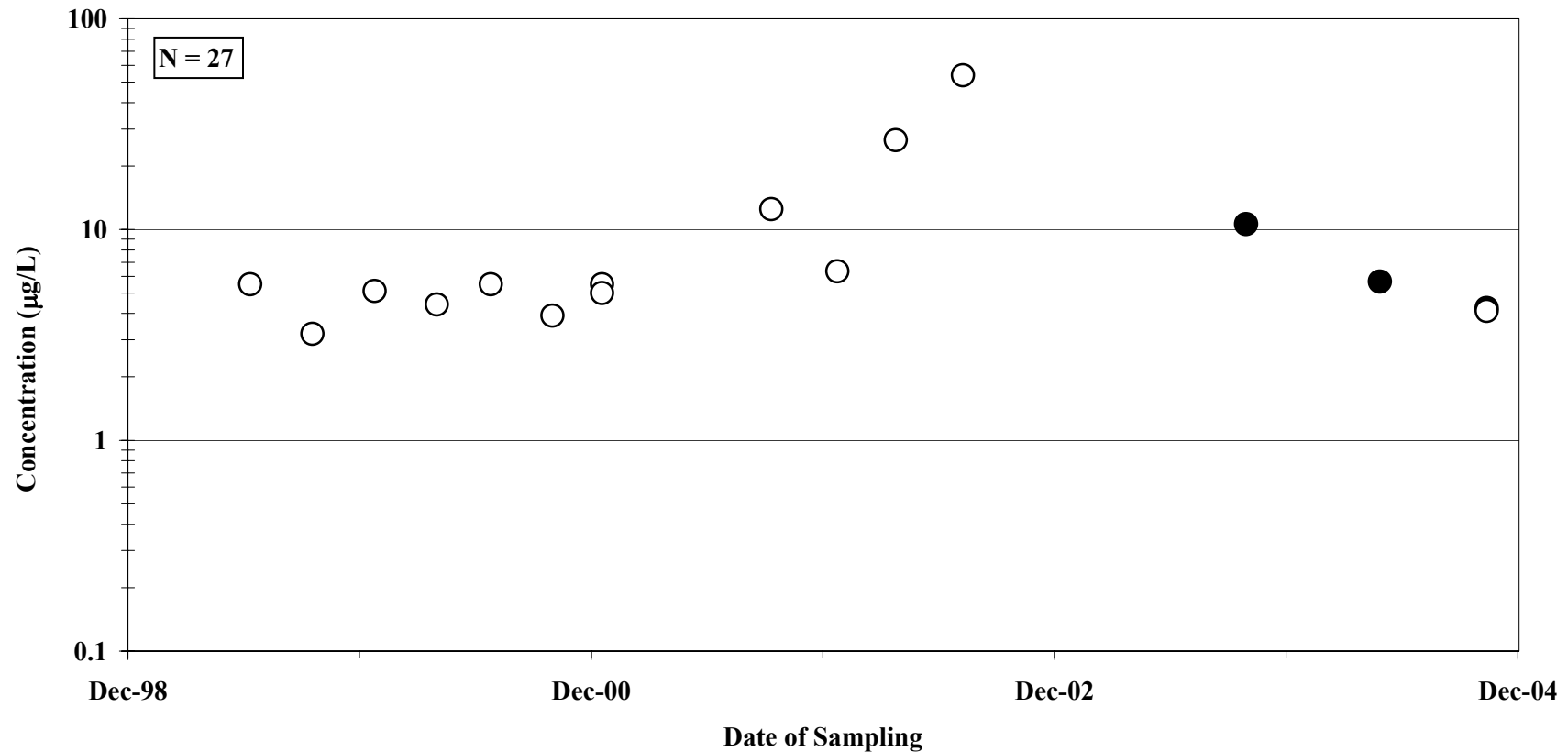


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-98**

**DISSOLVED NICKEL CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

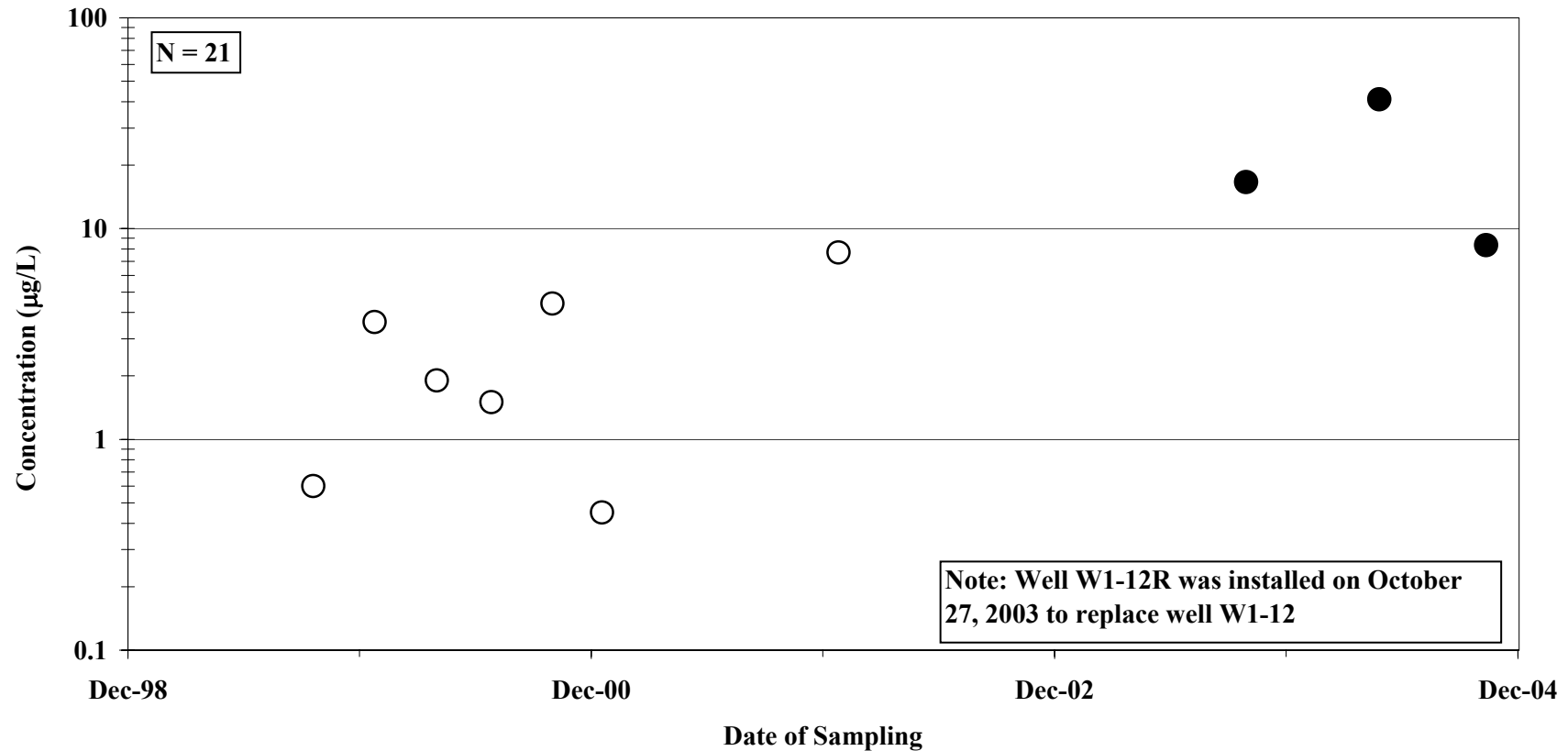


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-99**

**DISSOLVED NICKEL CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

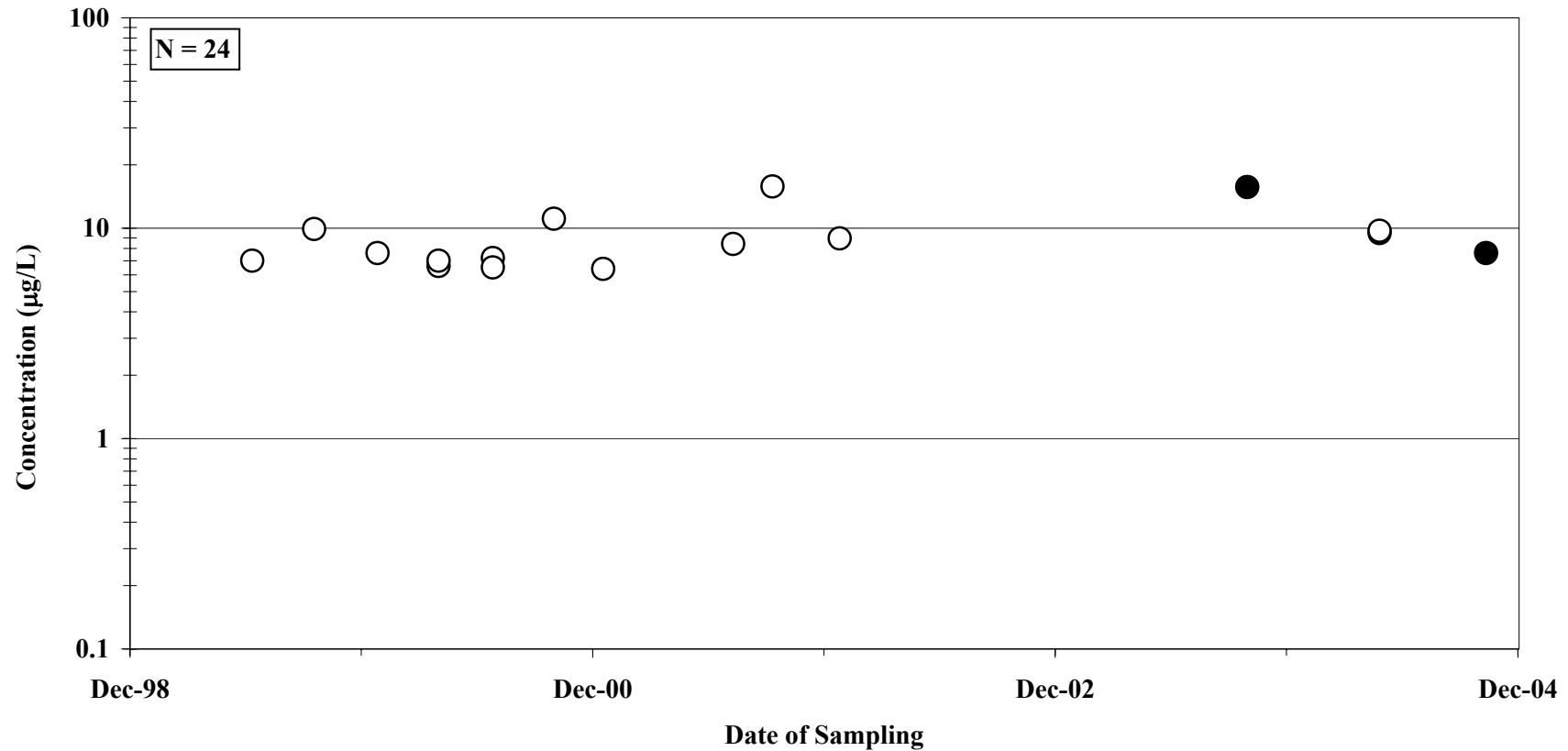


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-100**

**DISSOLVED NICKEL CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

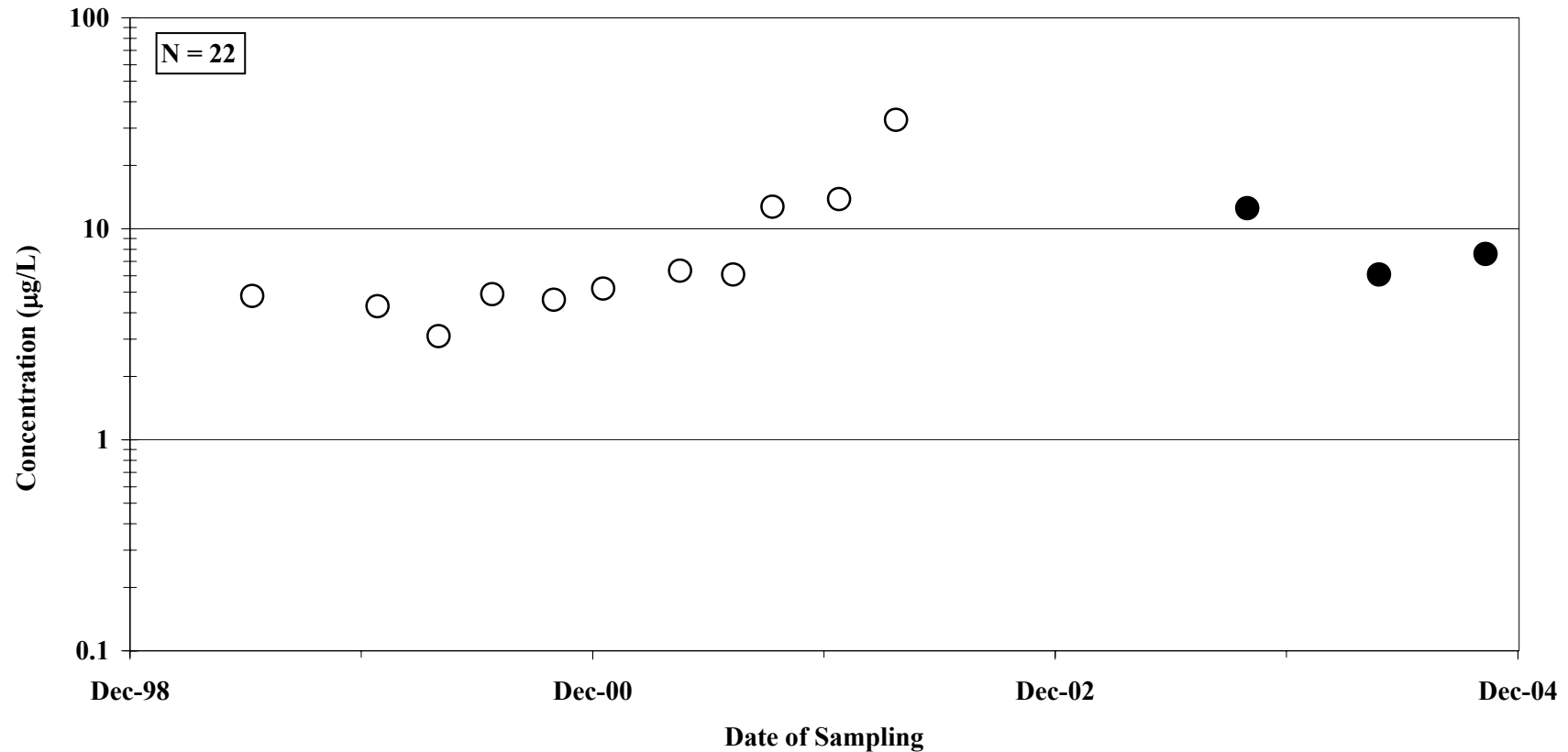


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-101**

**DISSOLVED NICKEL CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

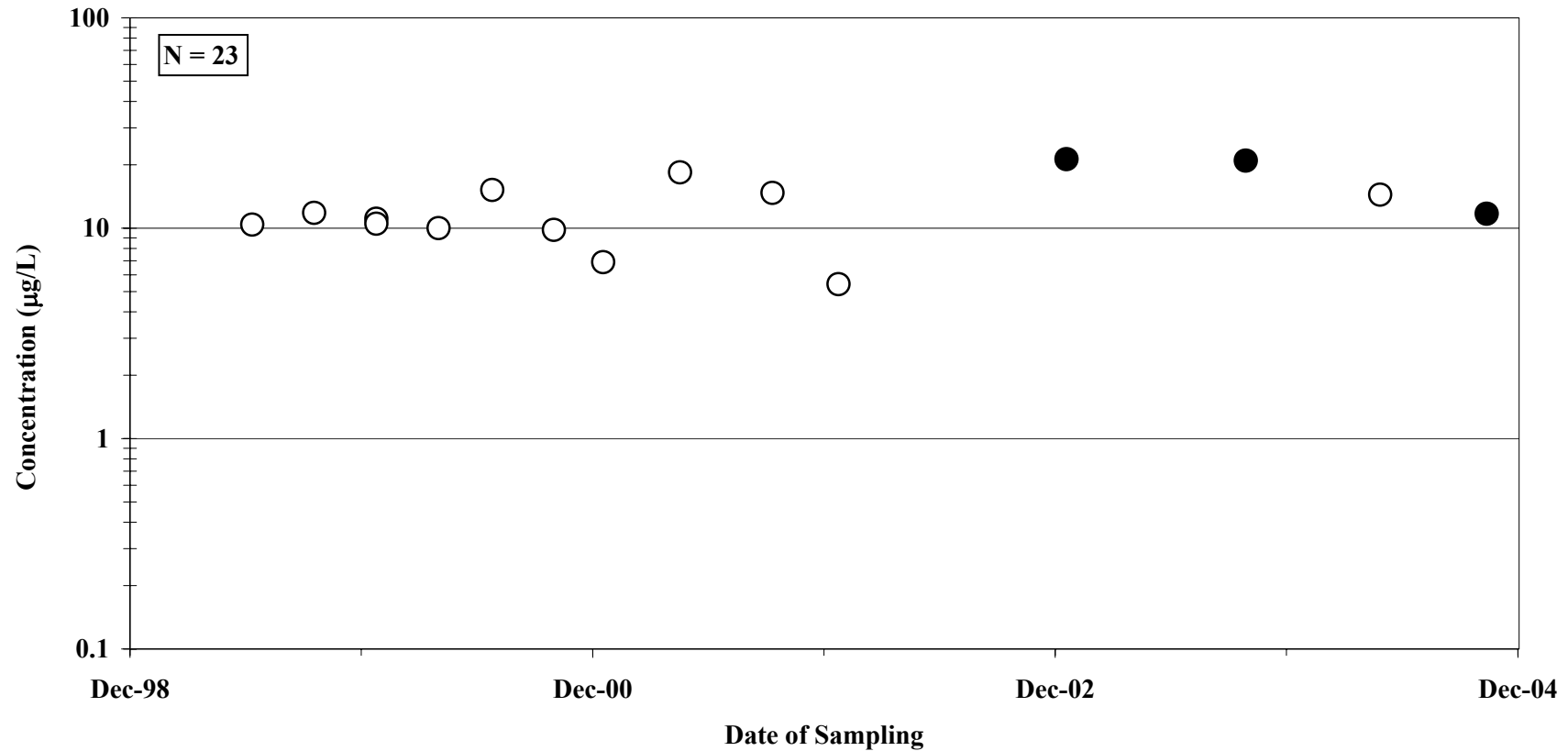


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-102**

**DISSOLVED NICKEL CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

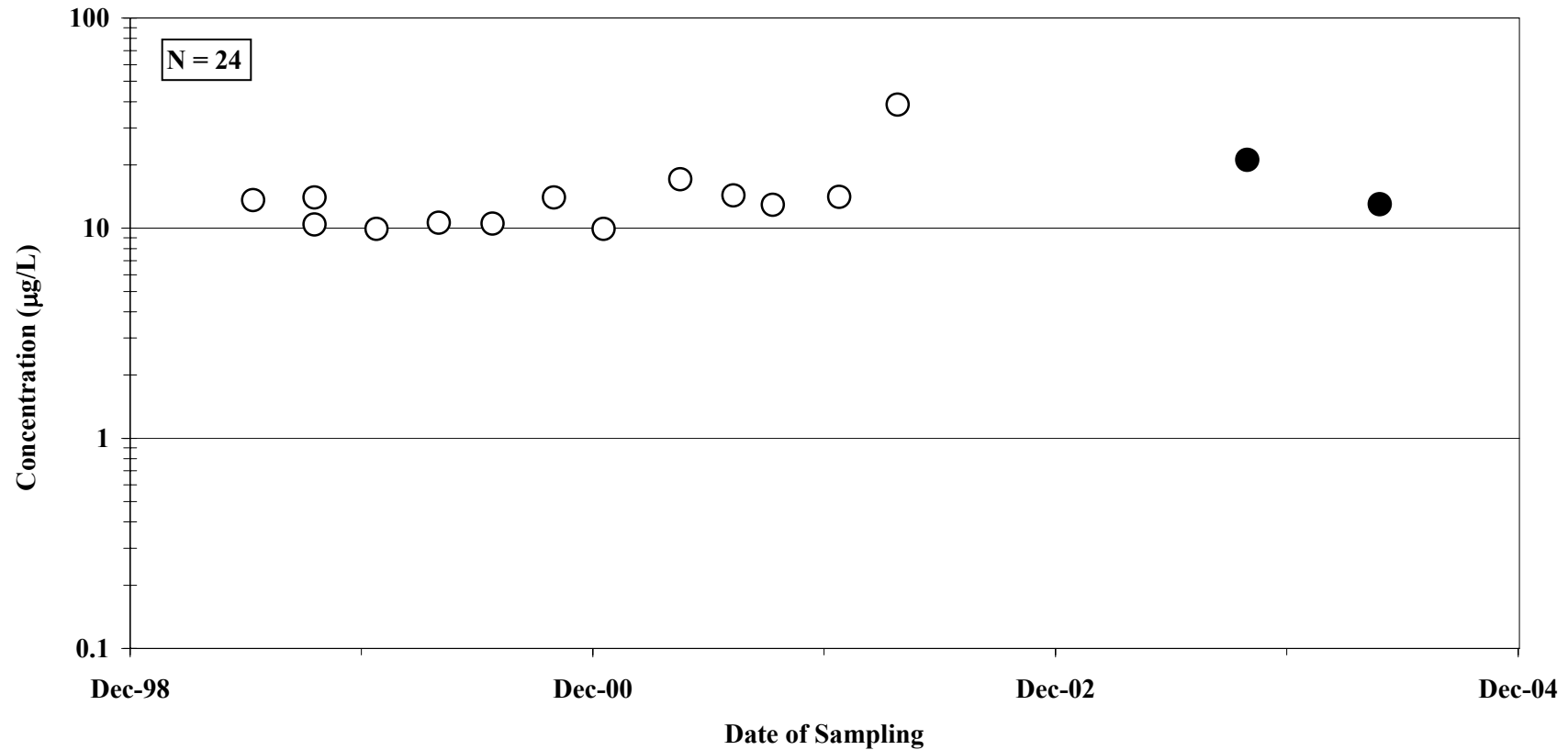


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-103**

**DISSOLVED NICKEL CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



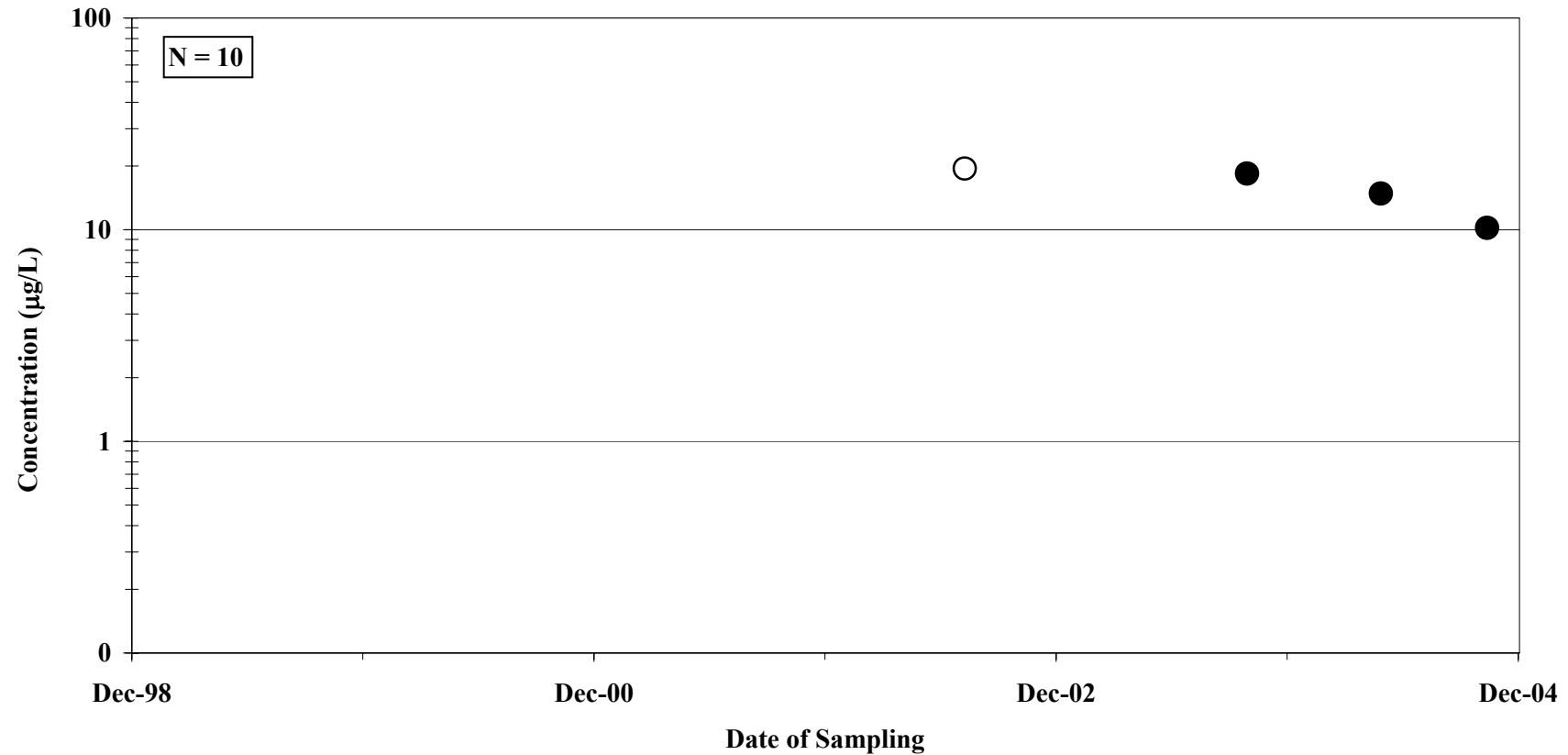
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-104**

**DISSOLVED NICKEL CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

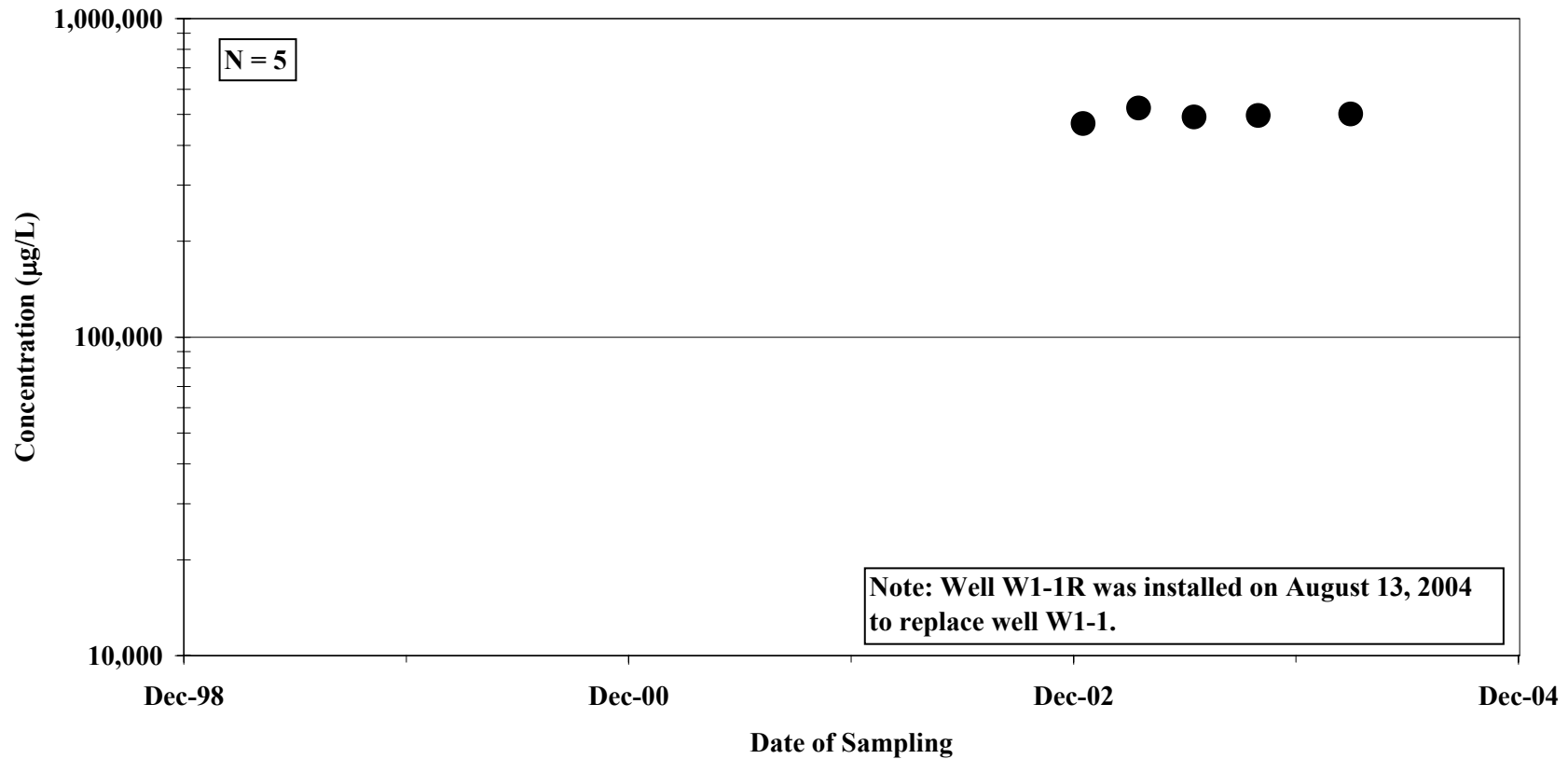


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-105**

**DISSOLVED POTASSIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

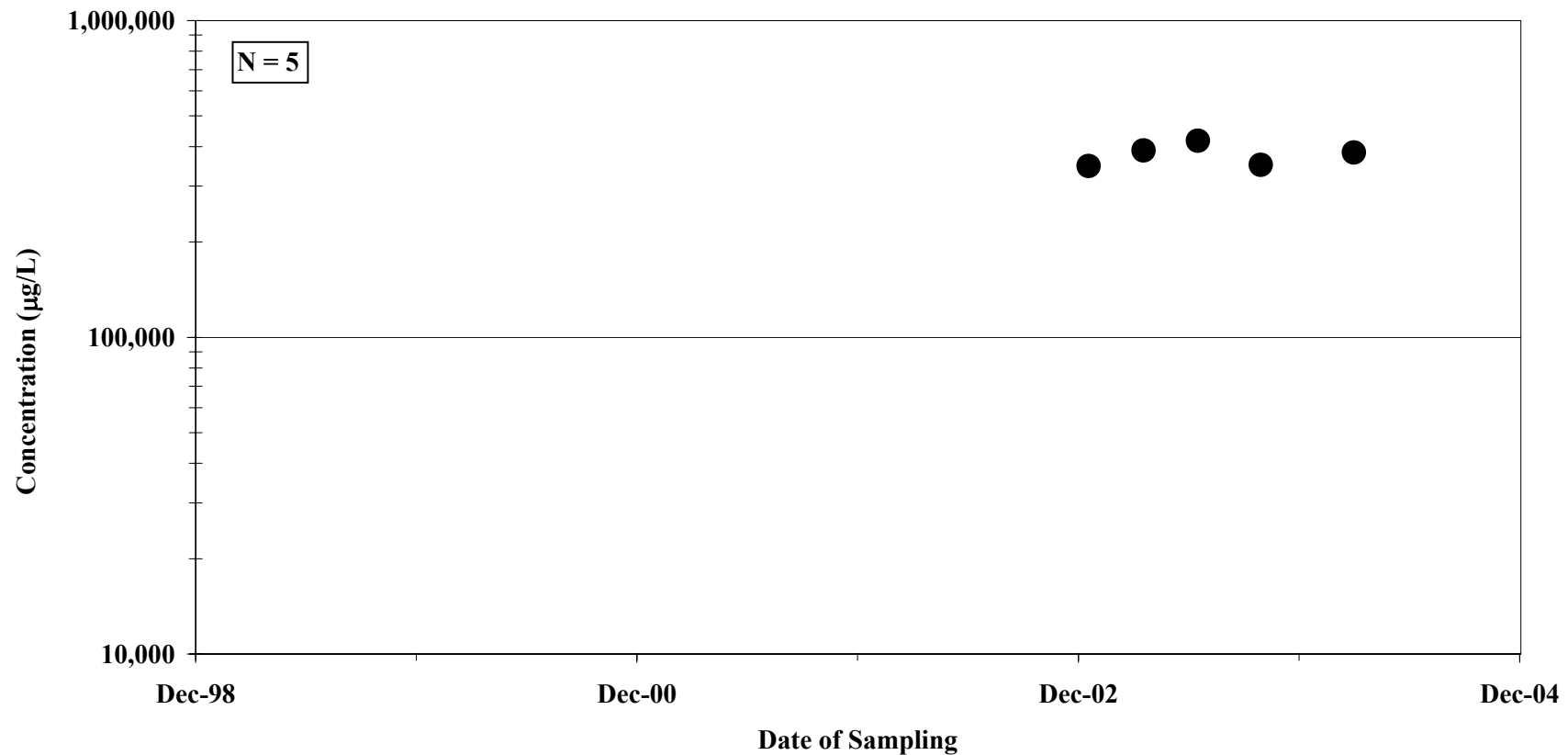


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-106**

**DISSOLVED POTASSIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

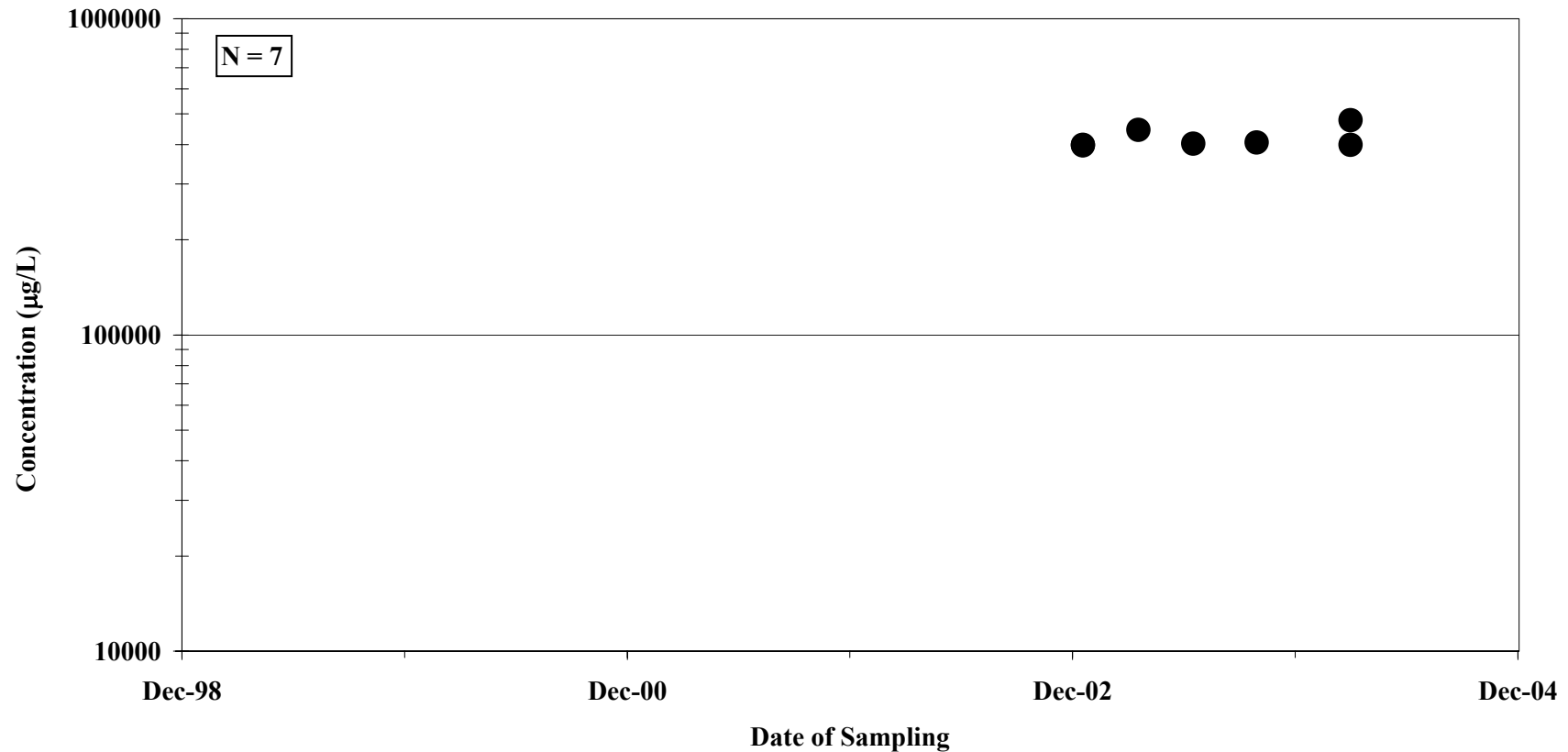


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-107**

**DISSOLVED POTASSIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

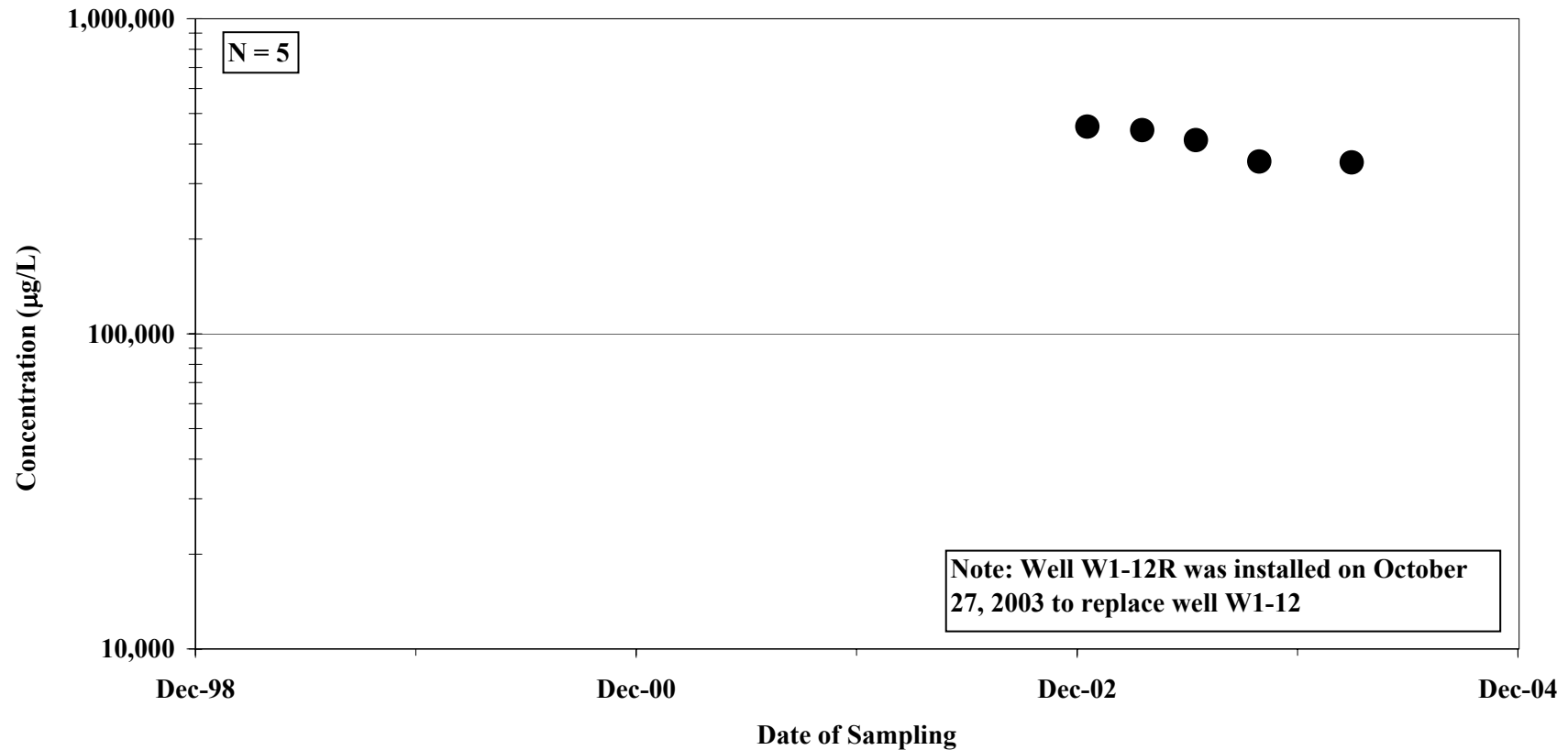


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-108**

**DISSOLVED POTASSIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

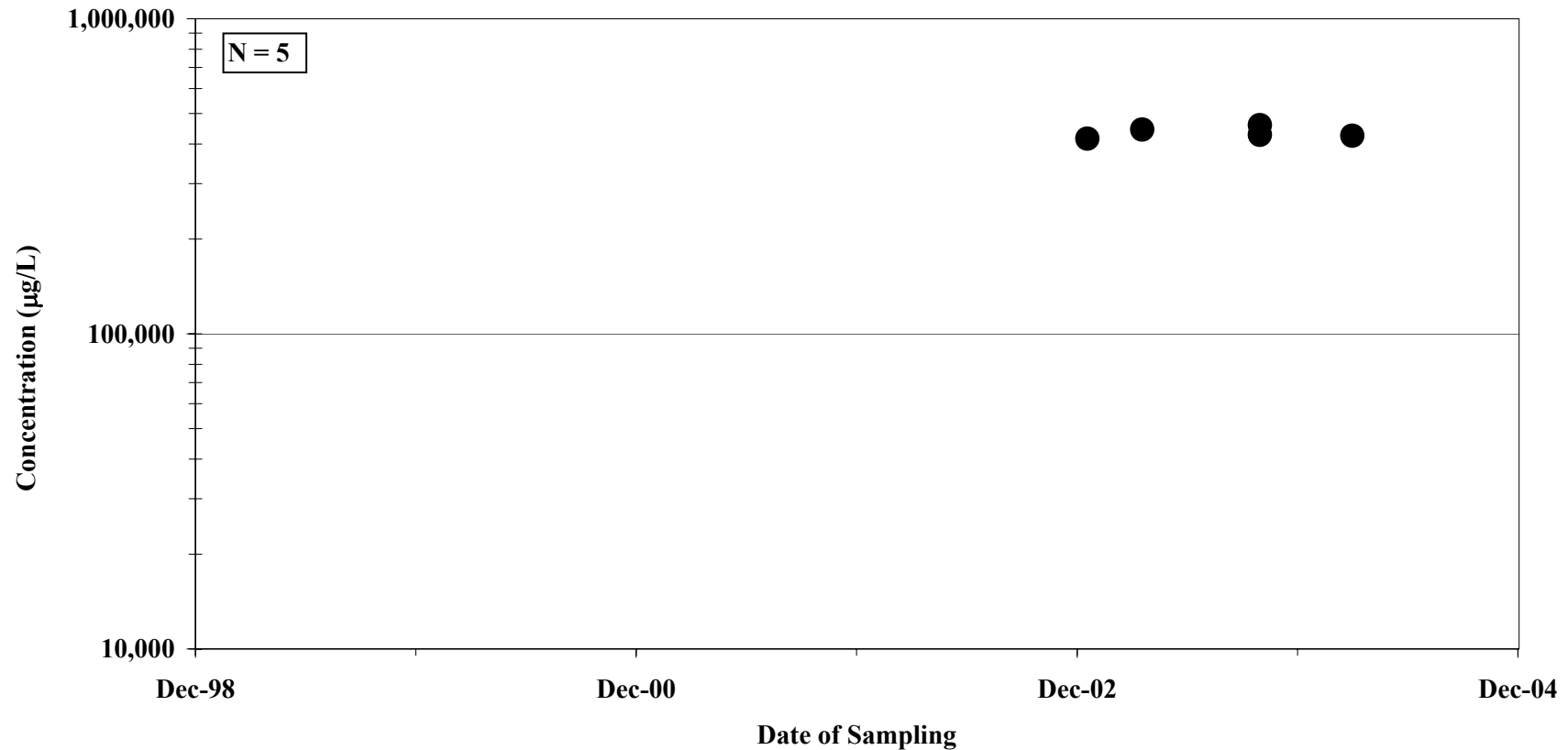


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-109**

**DISSOLVED POTASSIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

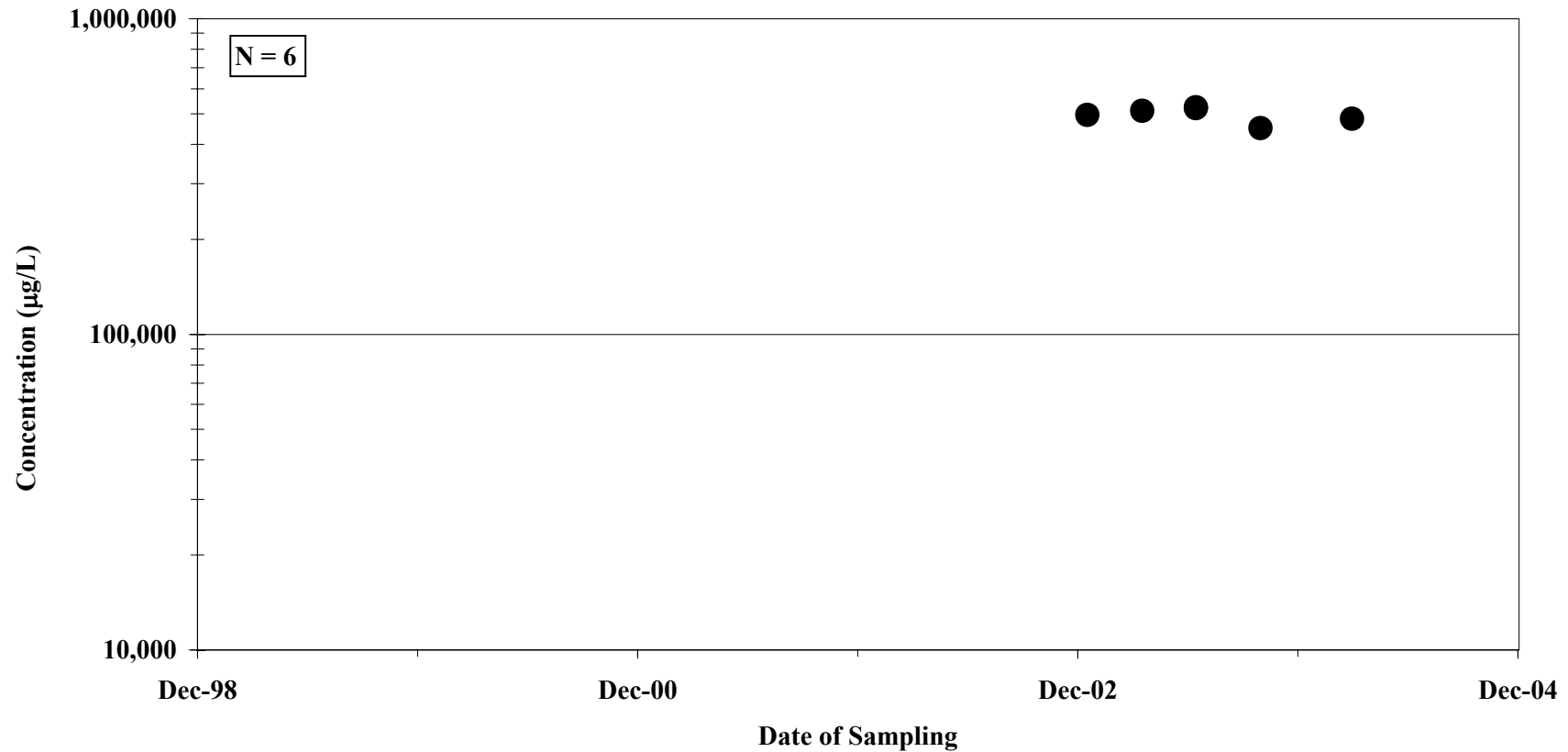


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-110**

**DISSOLVED POTASSIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

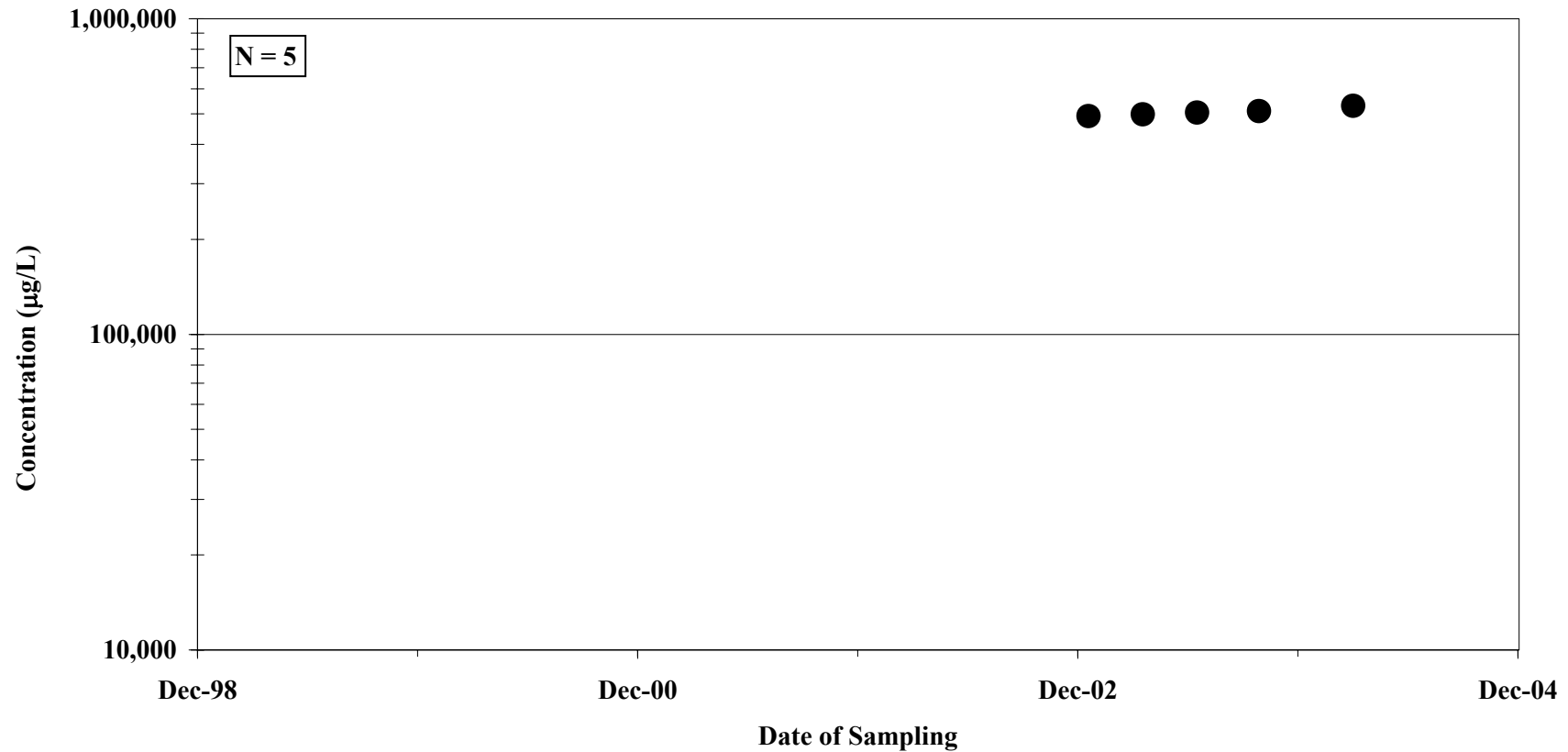


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-111**

**DISSOLVED POTASSIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



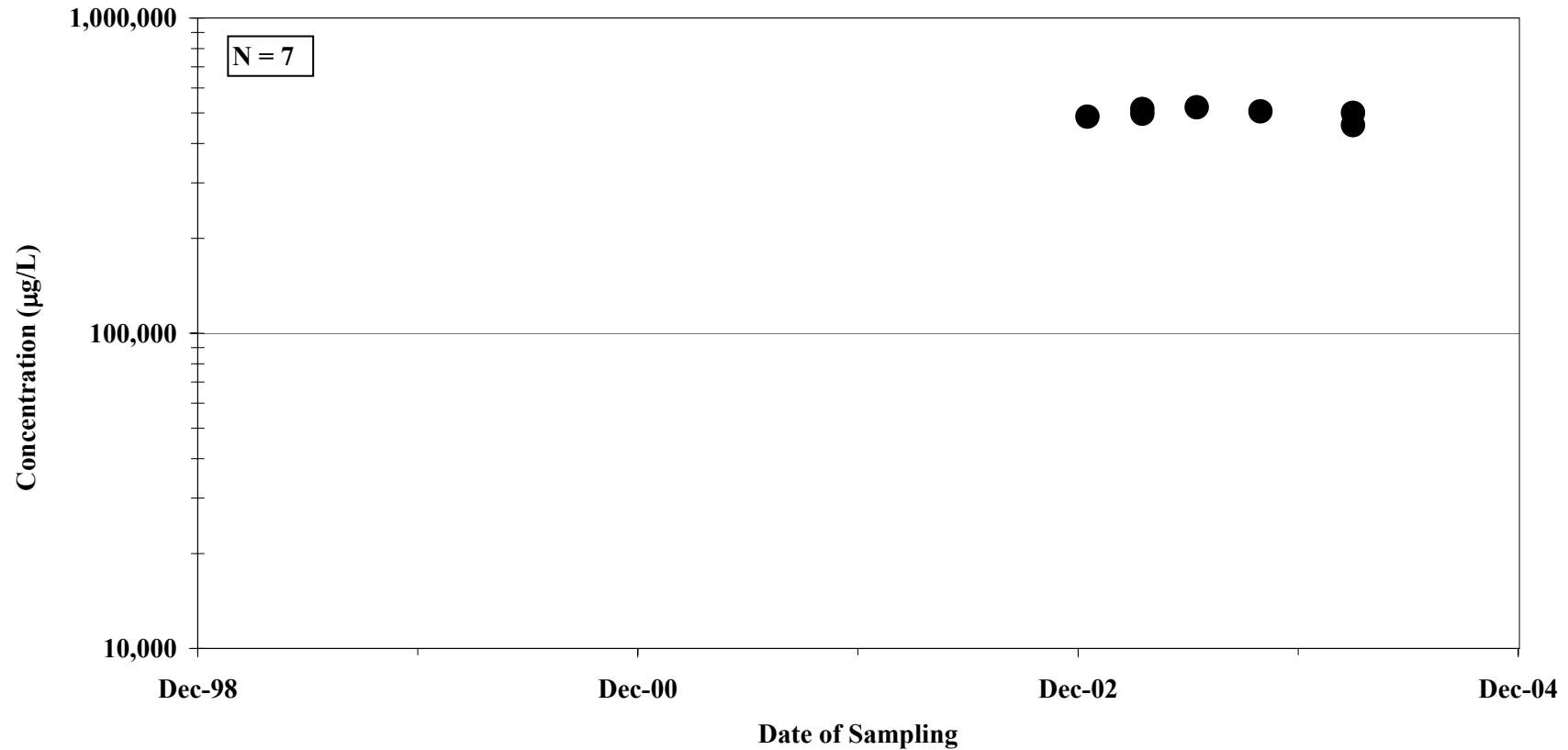
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-112**

**DISSOLVED POTASSIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

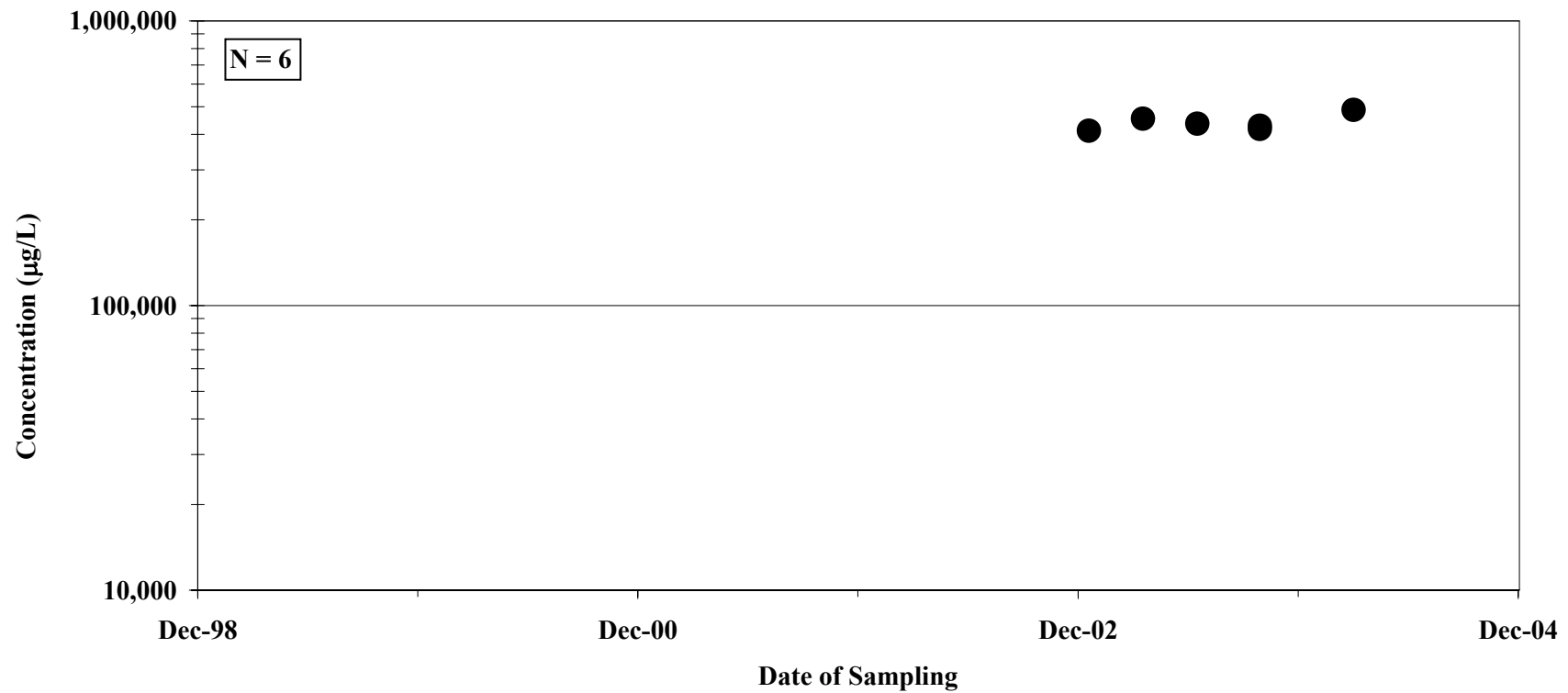


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-113**

**DISSOLVED POTASSIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

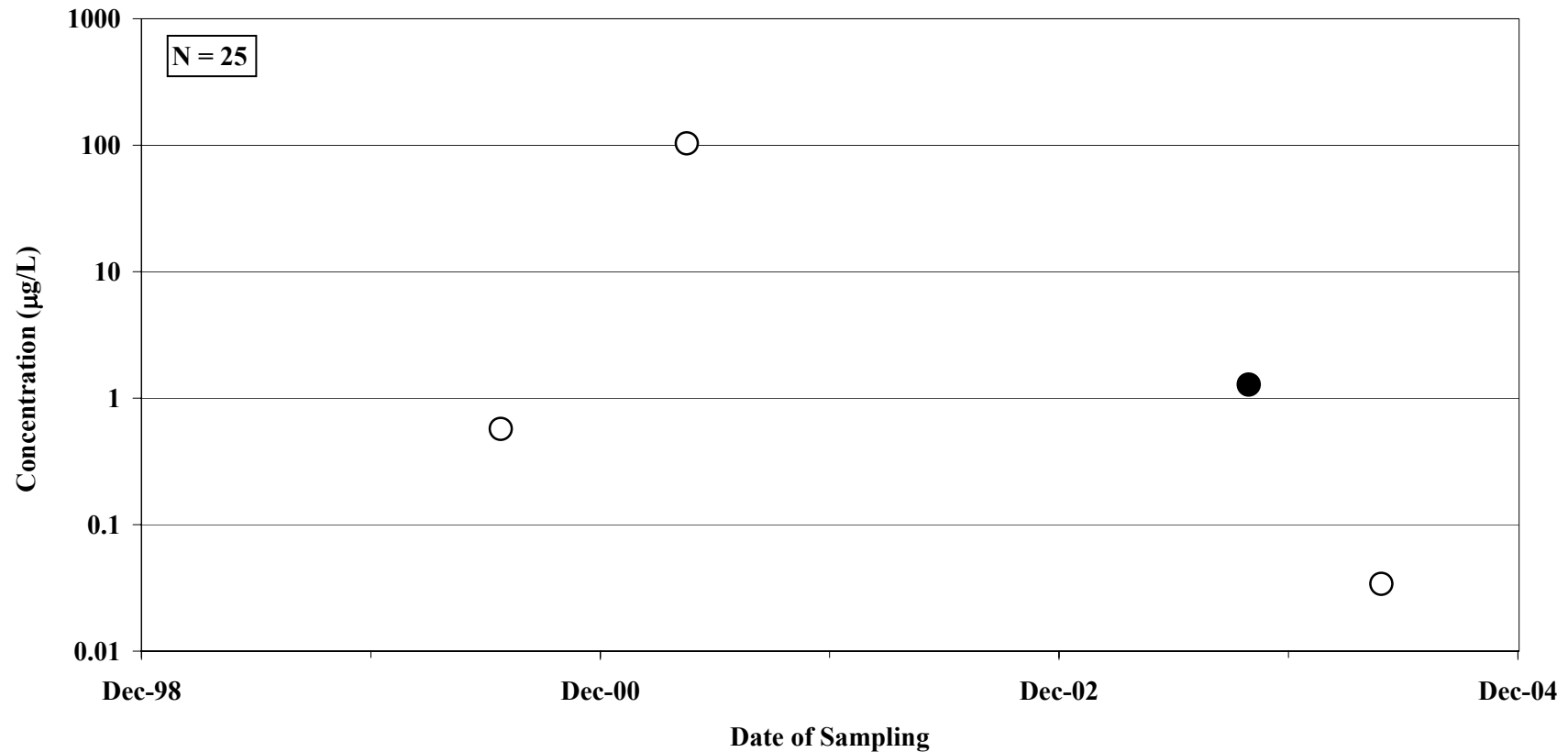


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-114**

**DISSOLVED SILVER CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

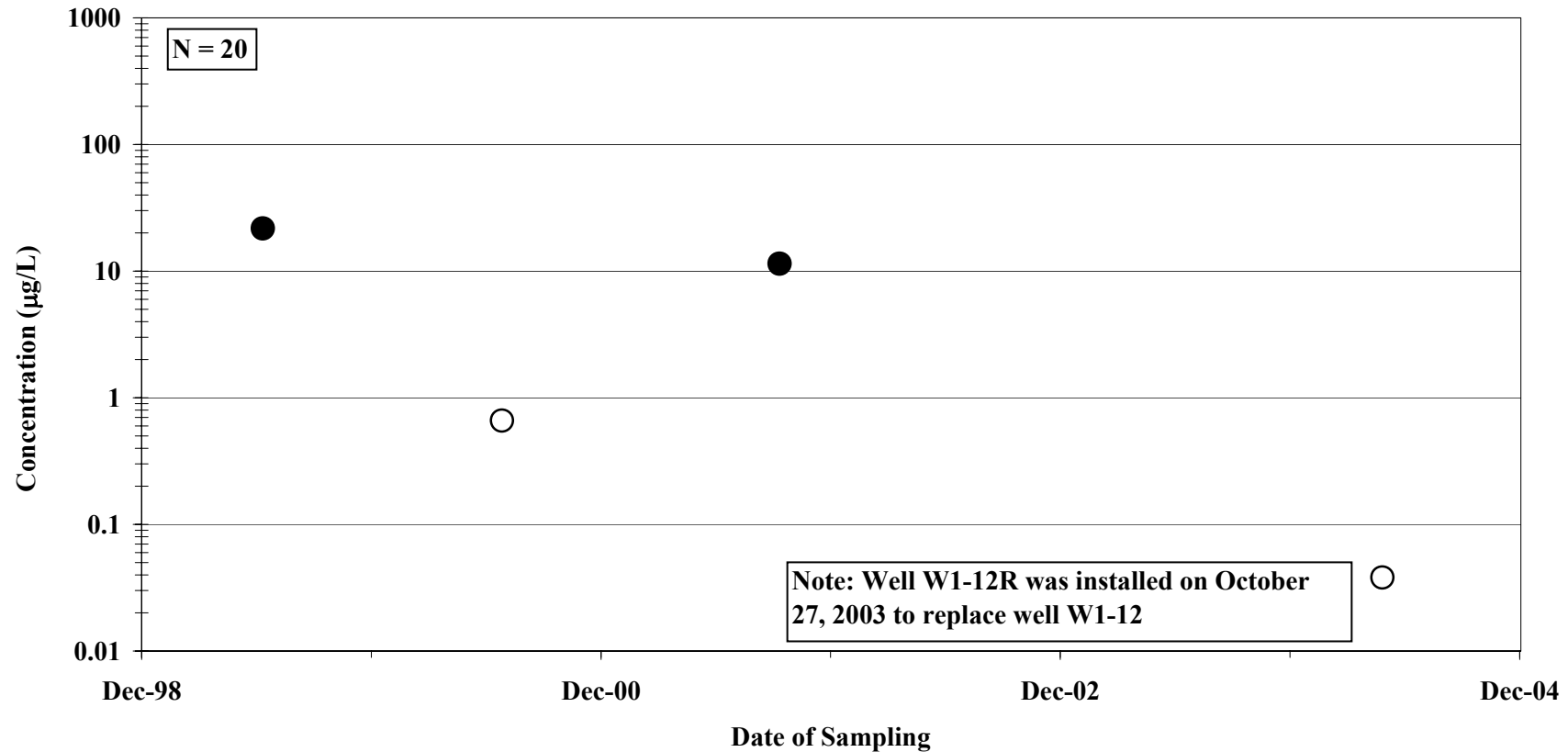


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-115**

**DISSOLVED SILVER CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

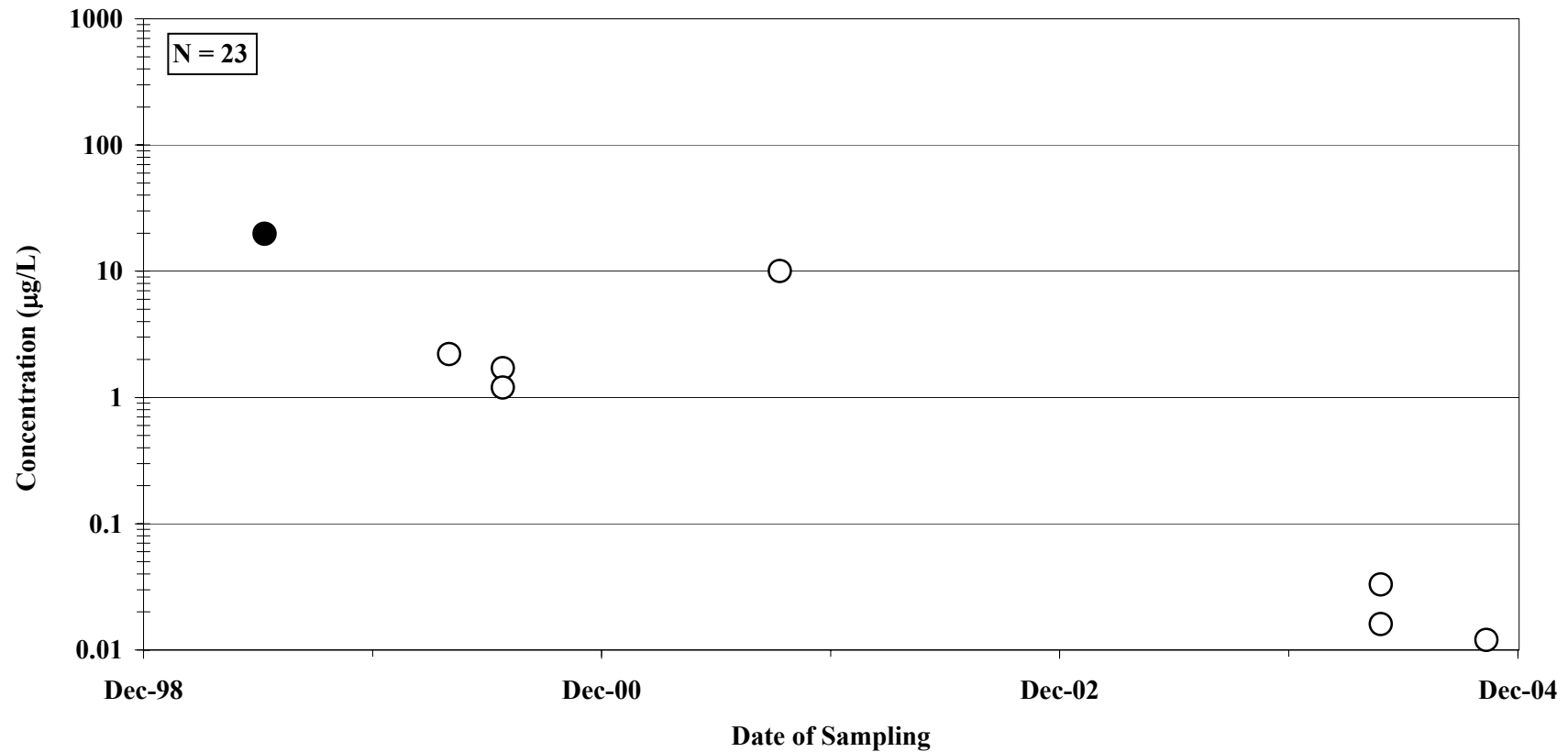


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-116**

**DISSOLVED SILVER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

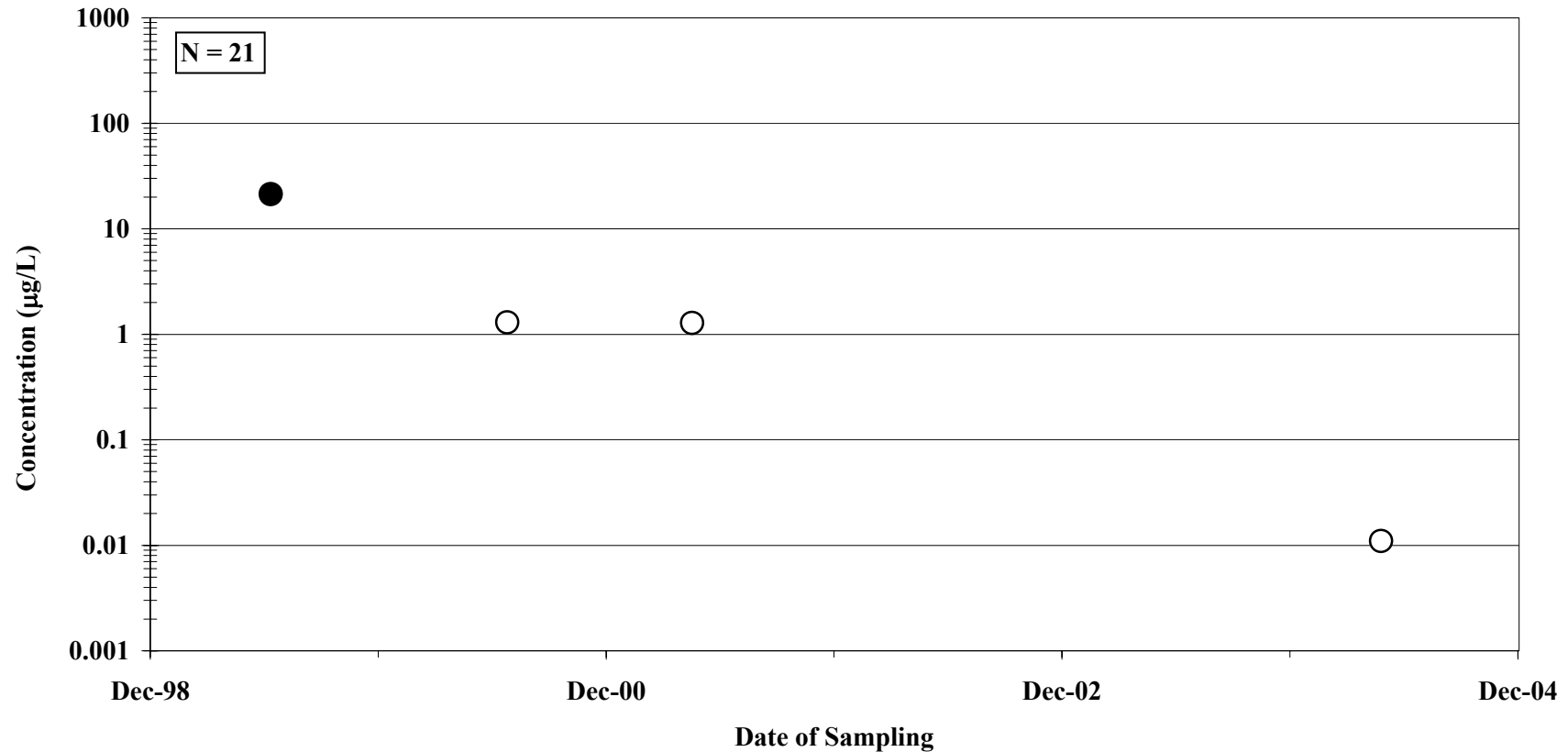


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-117**

**DISSOLVED SILVER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

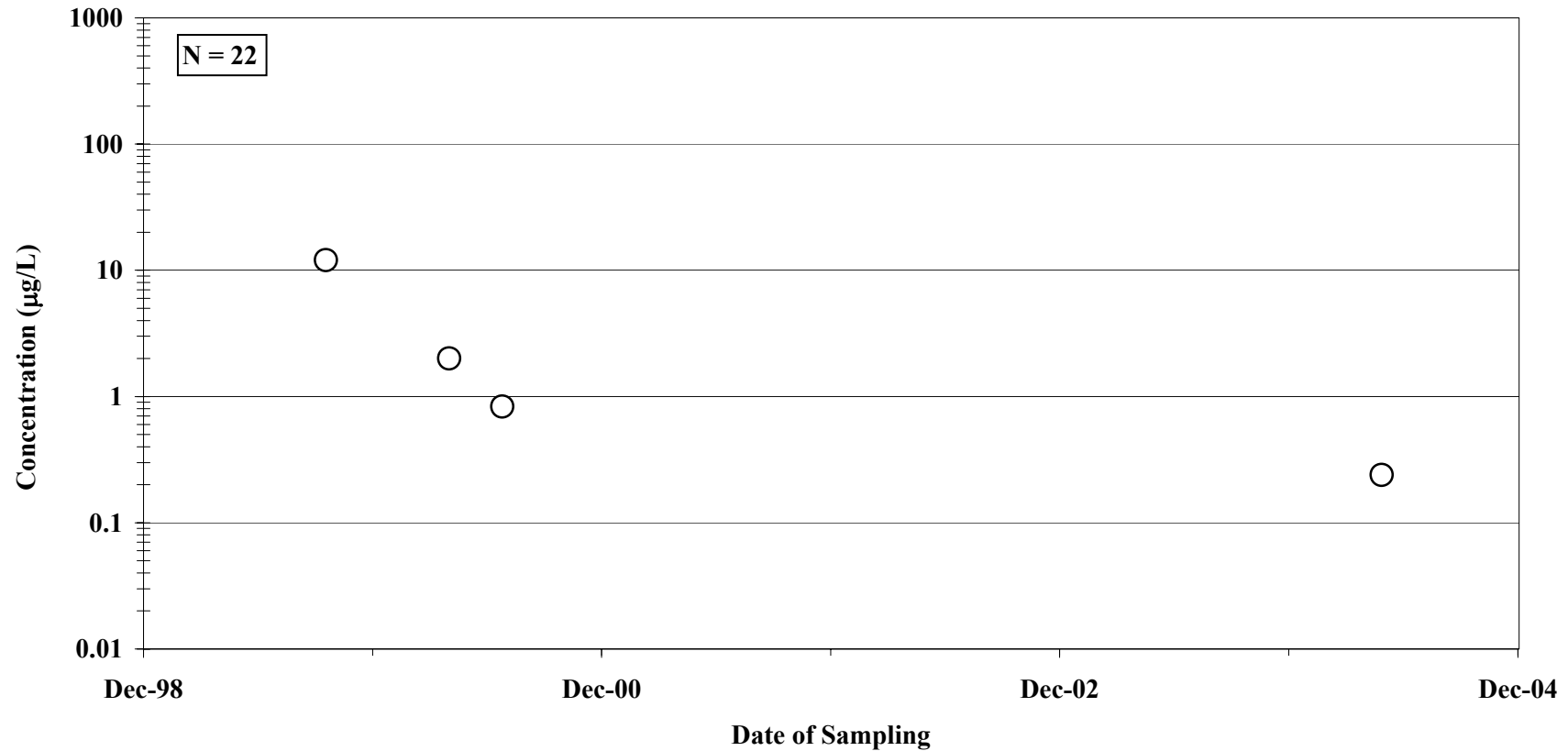


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-118**

**DISSOLVED SILVER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

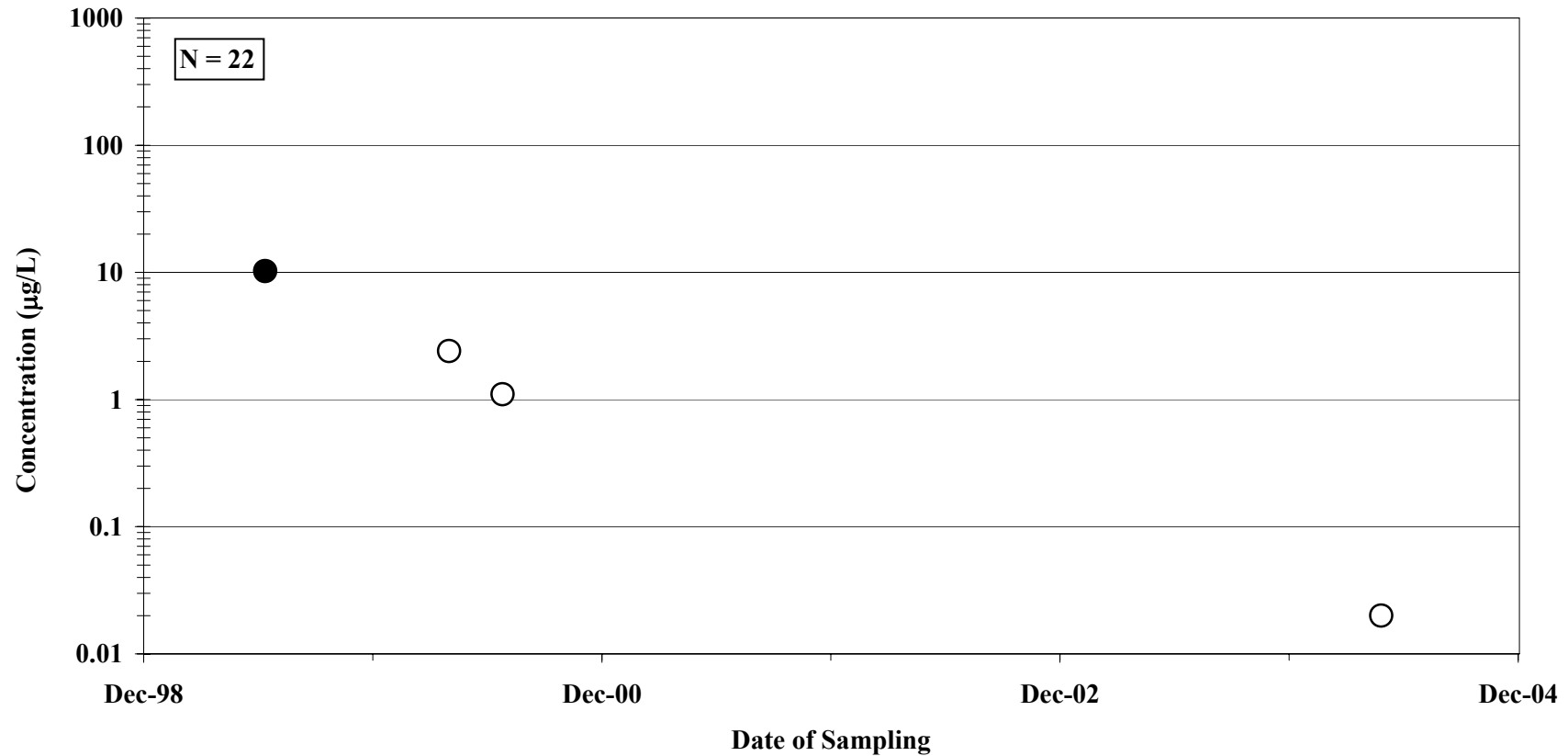


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-119**

**DISSOLVED SILVER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



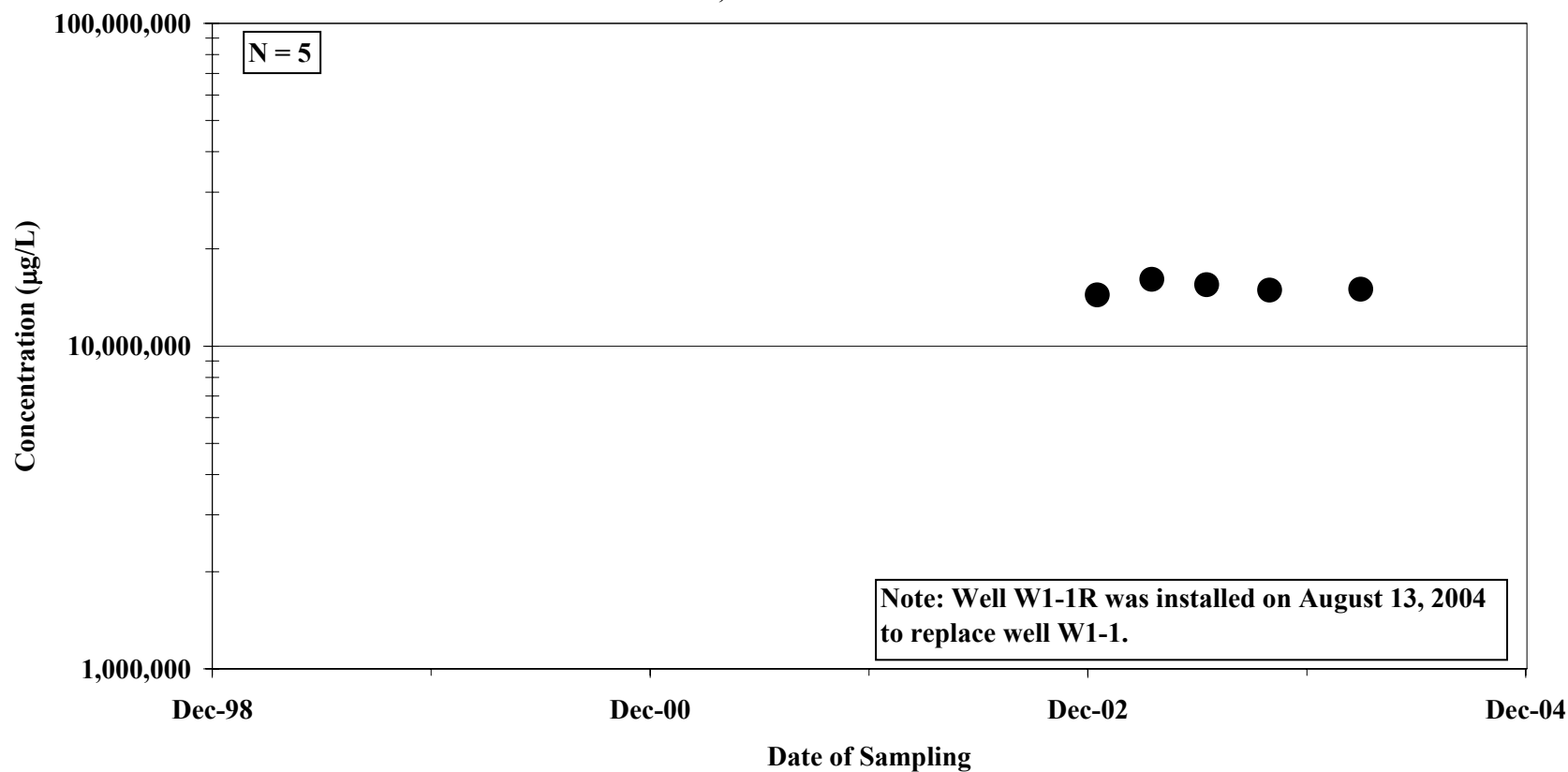
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-120**

**DISSOLVED SODIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

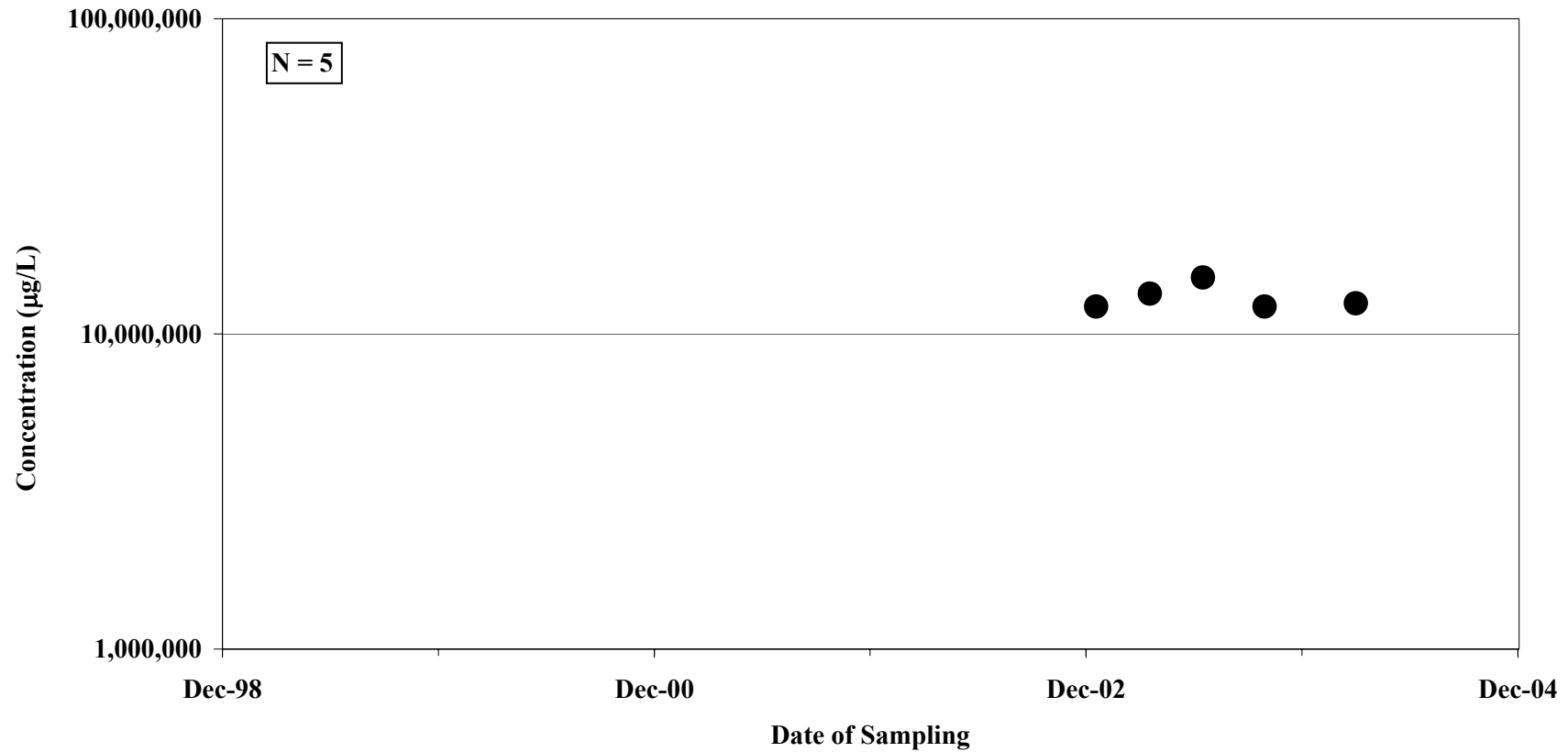


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-121**

**DISSOLVED SODIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

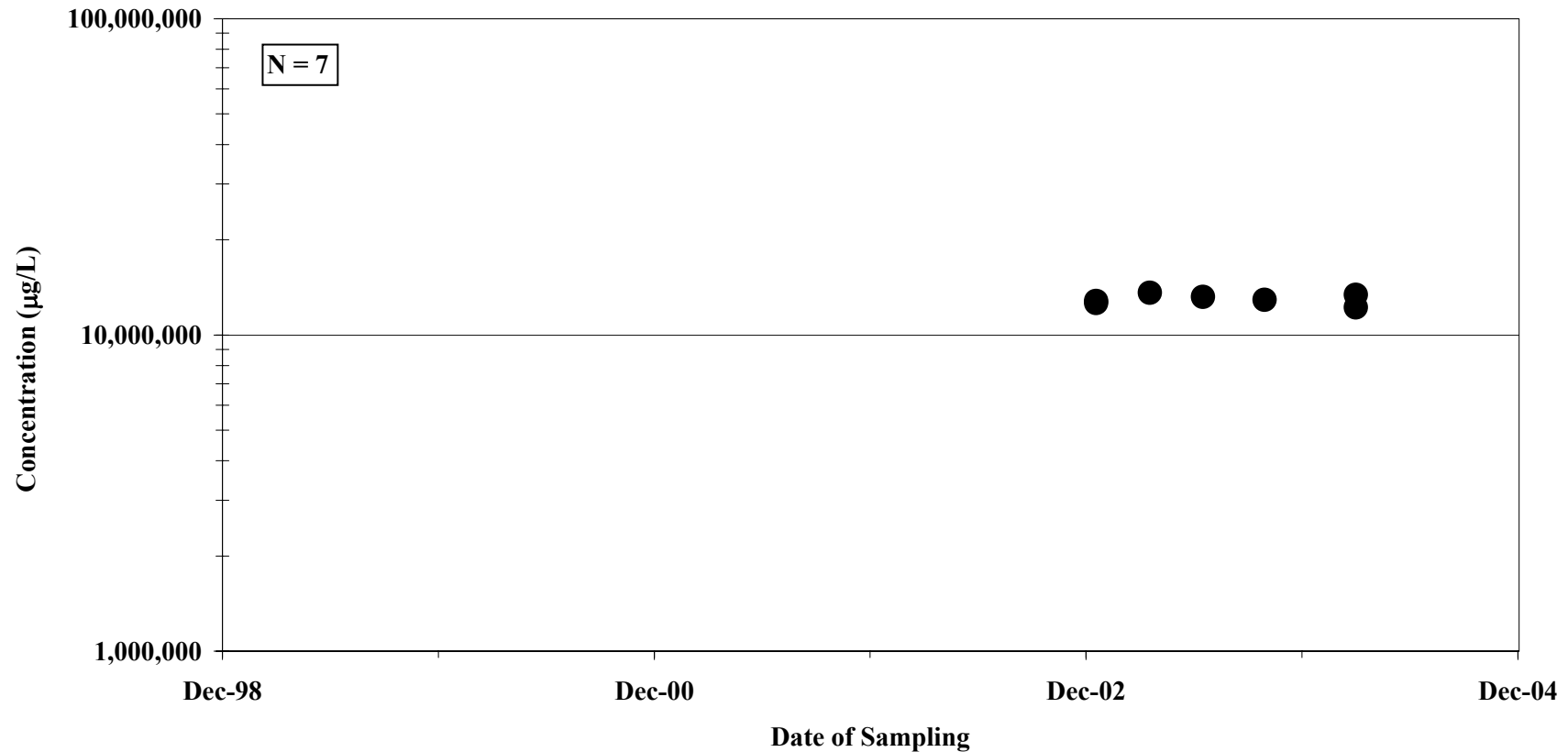


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-122**

**DISSOLVED SODIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

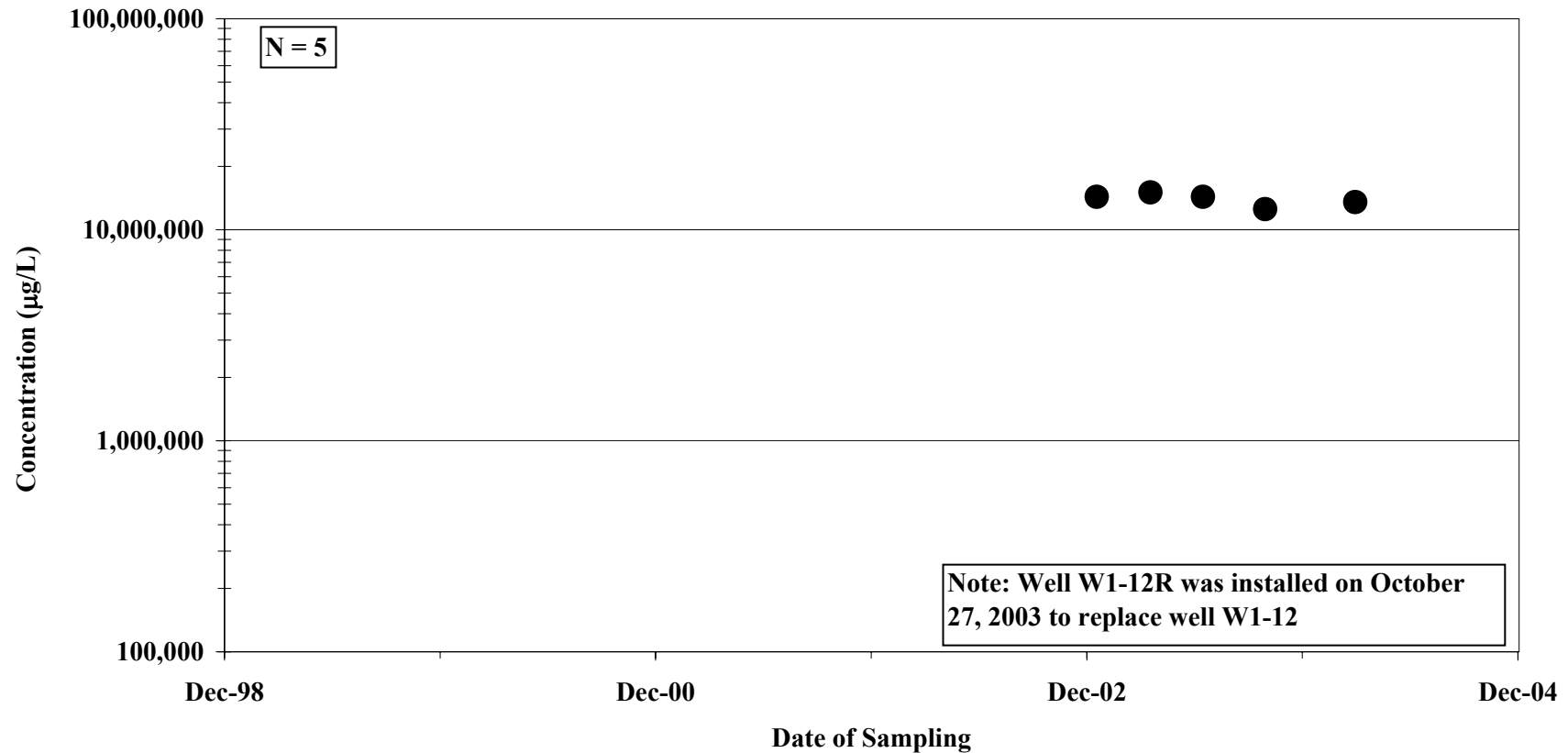


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-123**

**DISSOLVED SODIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

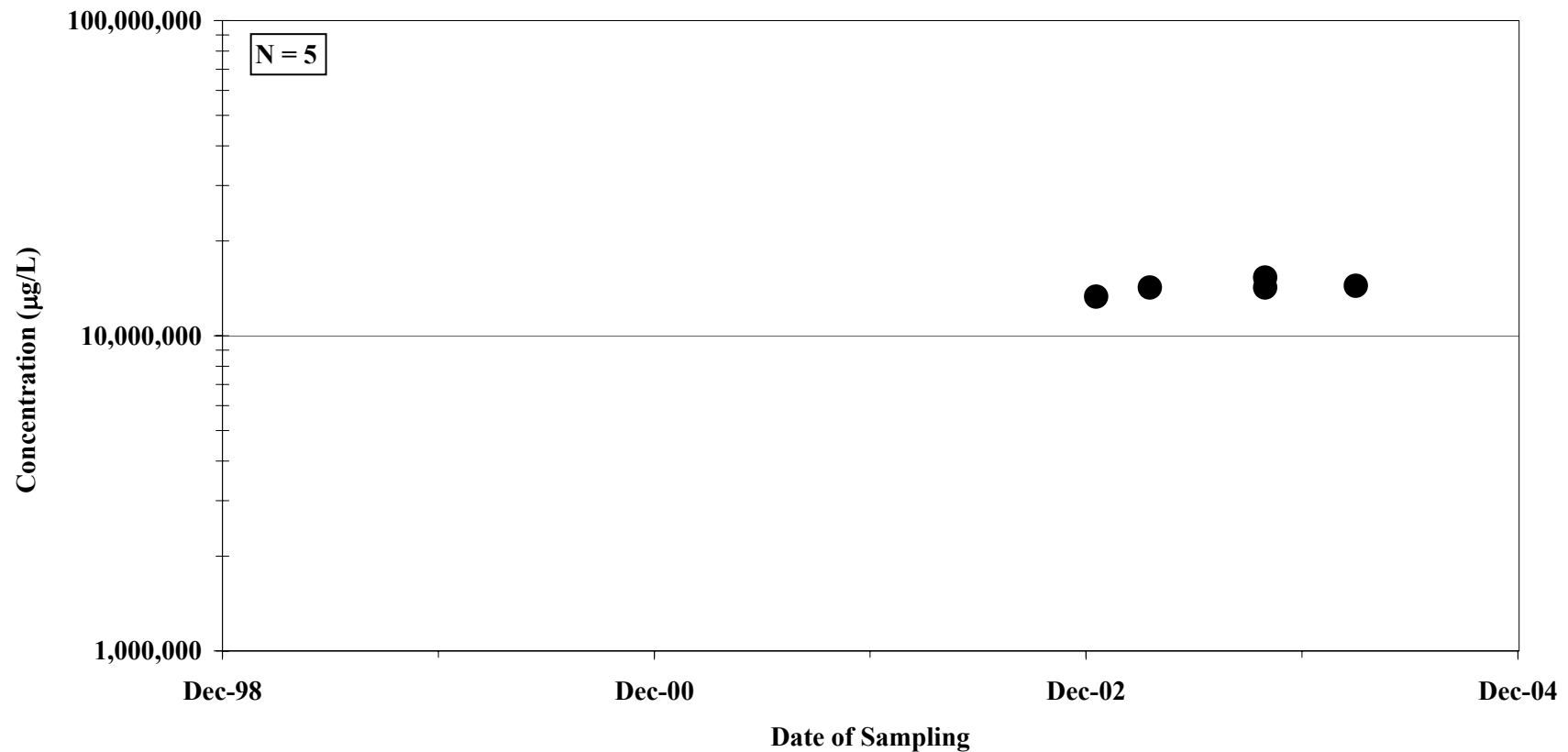


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-124**

**DISSOLVED SODIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

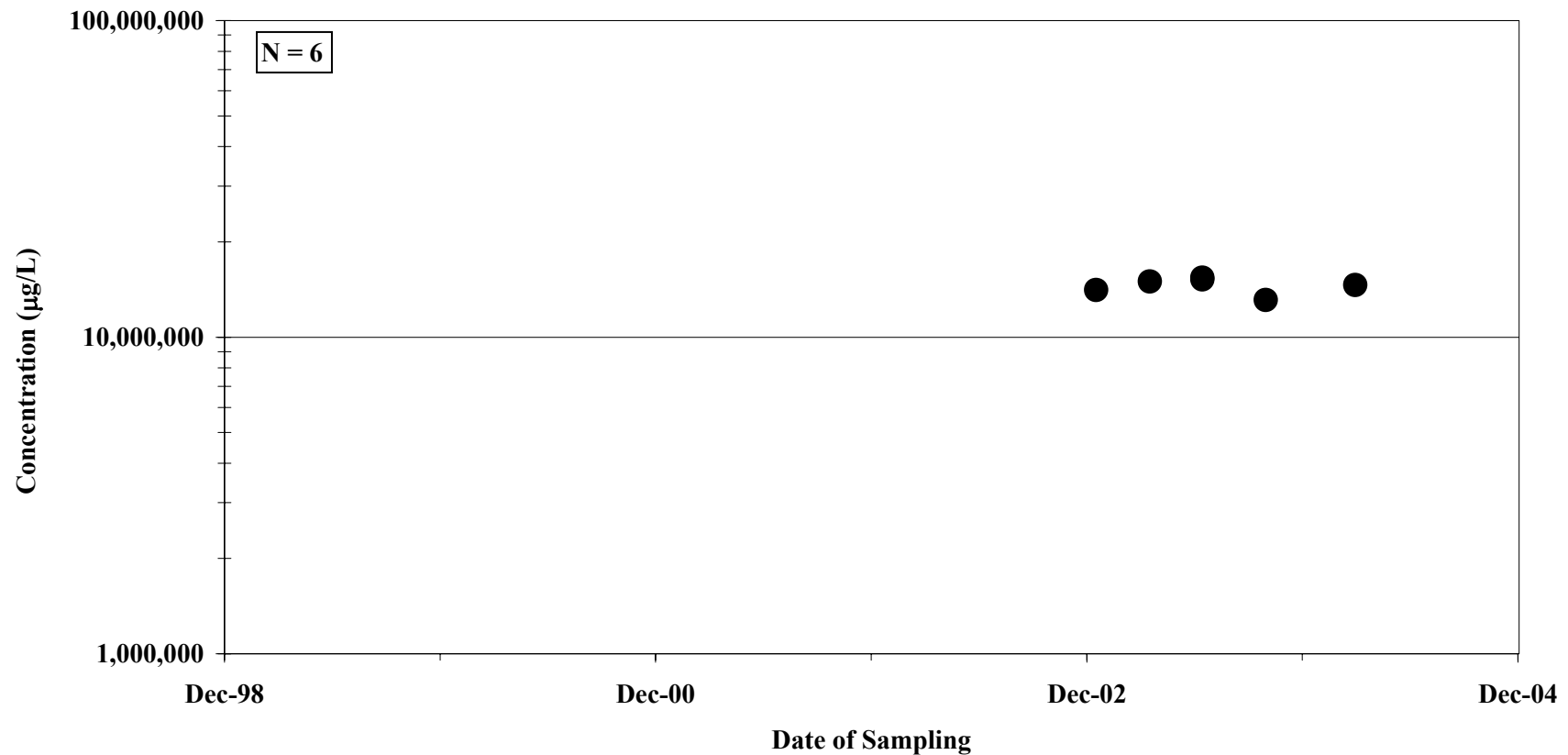


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-125**

**DISSOLVED SODIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

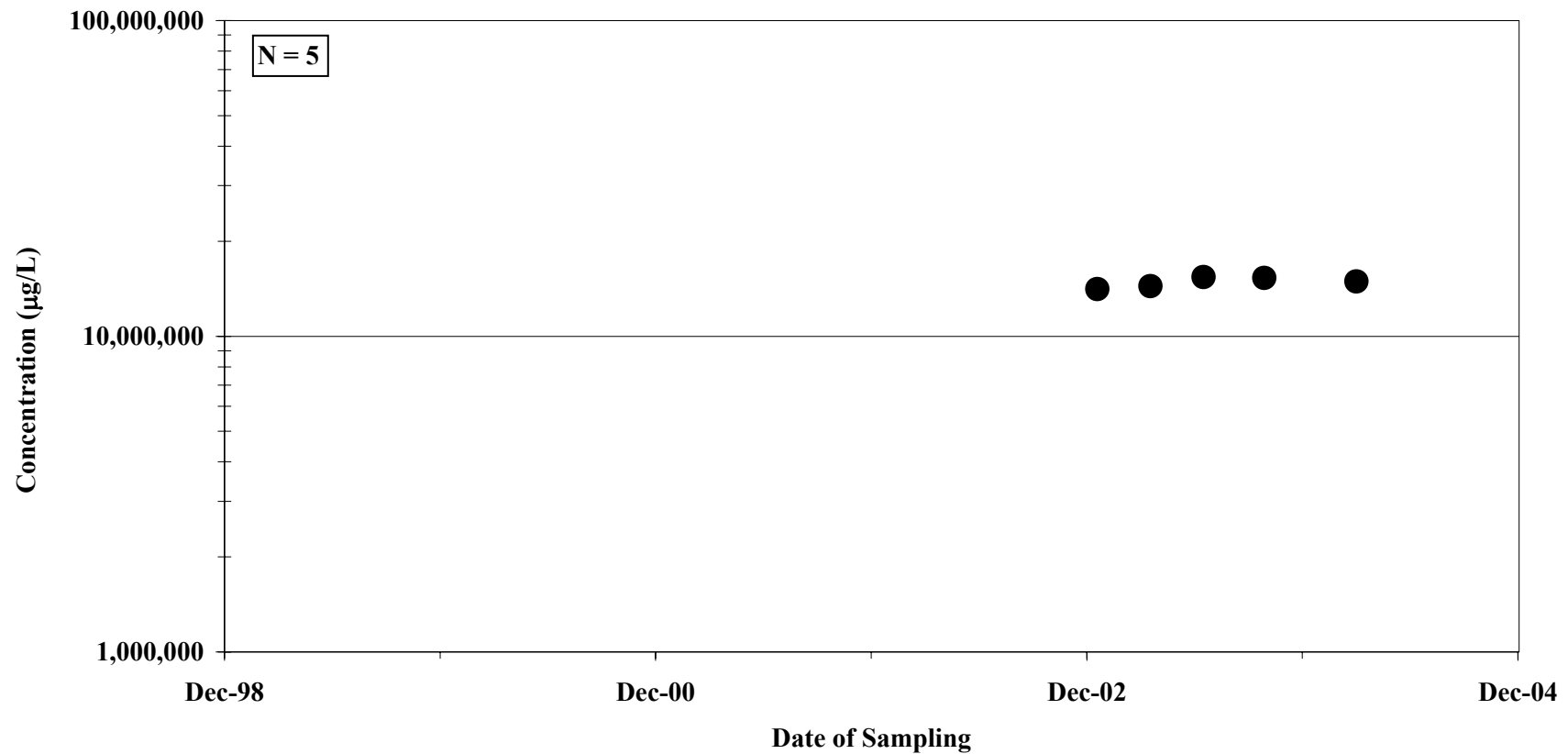


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-126**

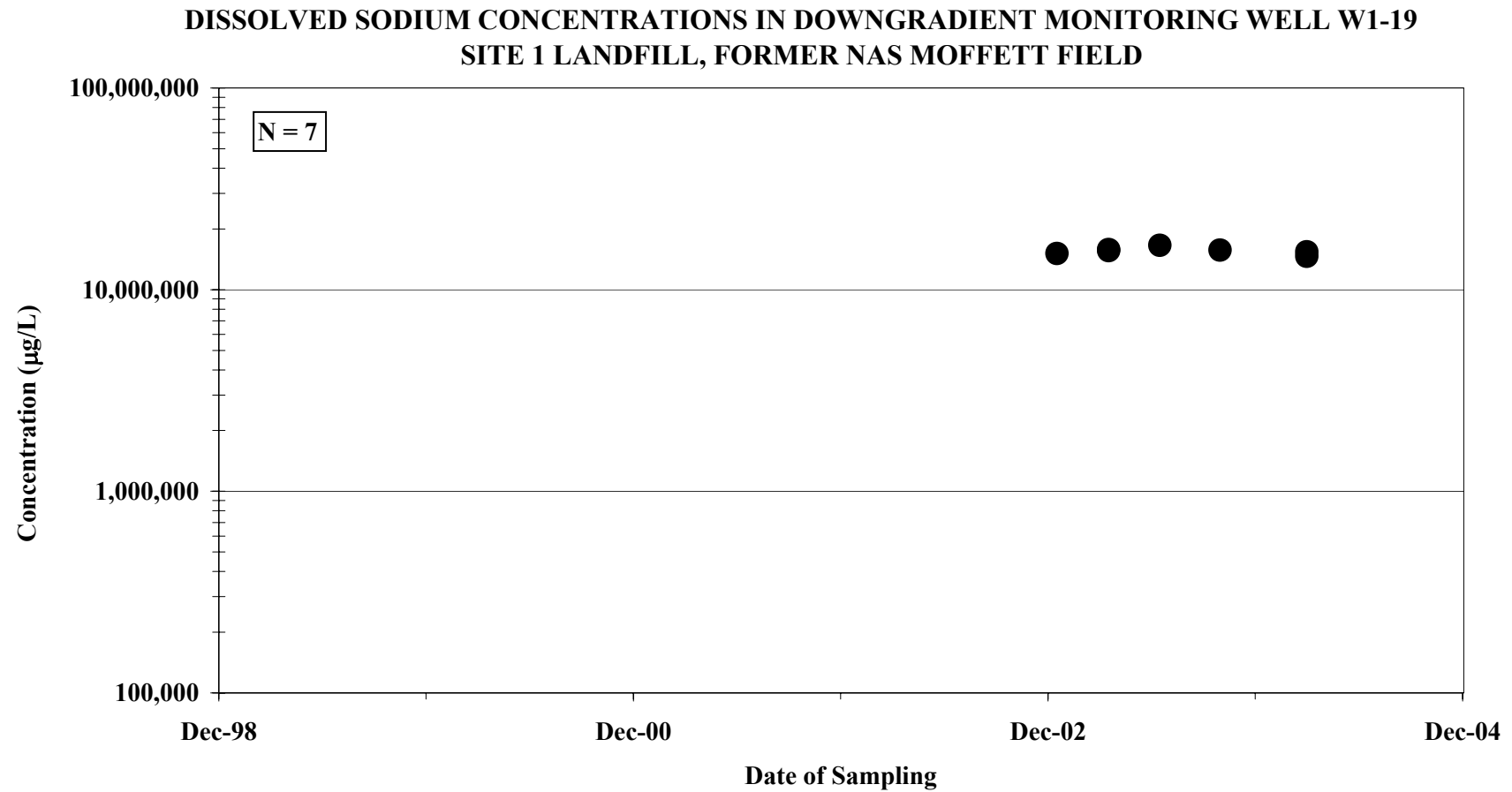
**DISSOLVED SODIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-127**



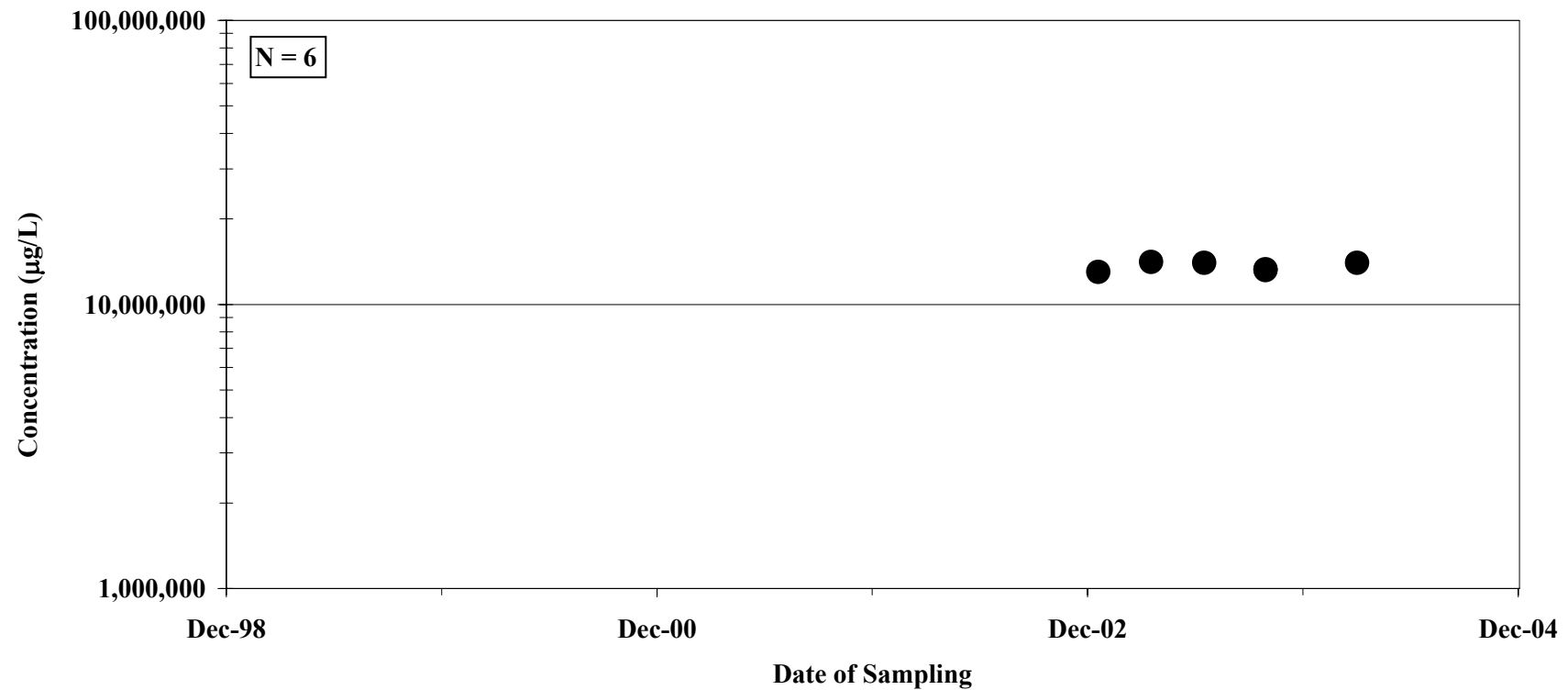
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-128**

**DISSOLVED SODIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

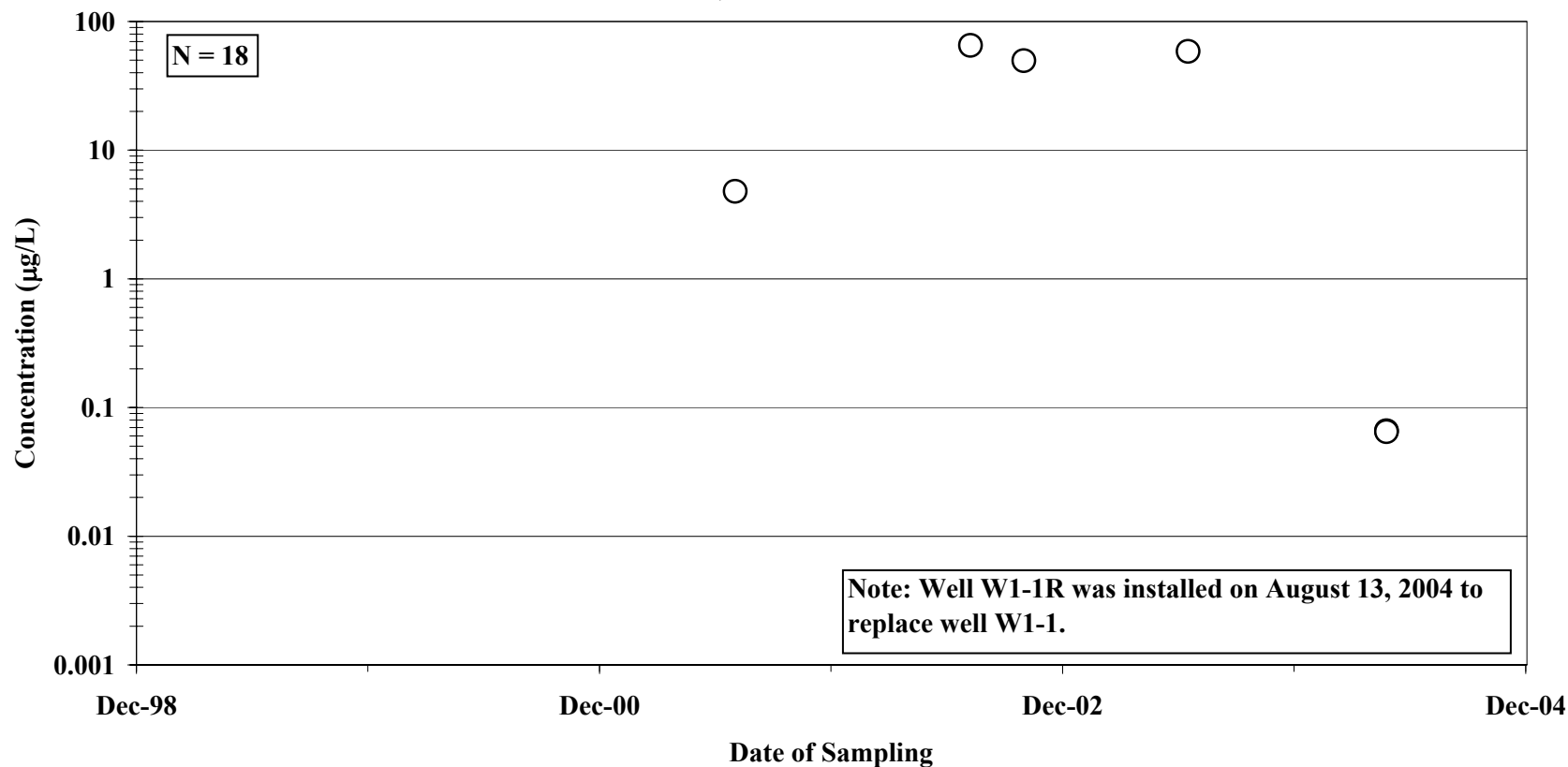


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-129**

**DISSOLVED THALLIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

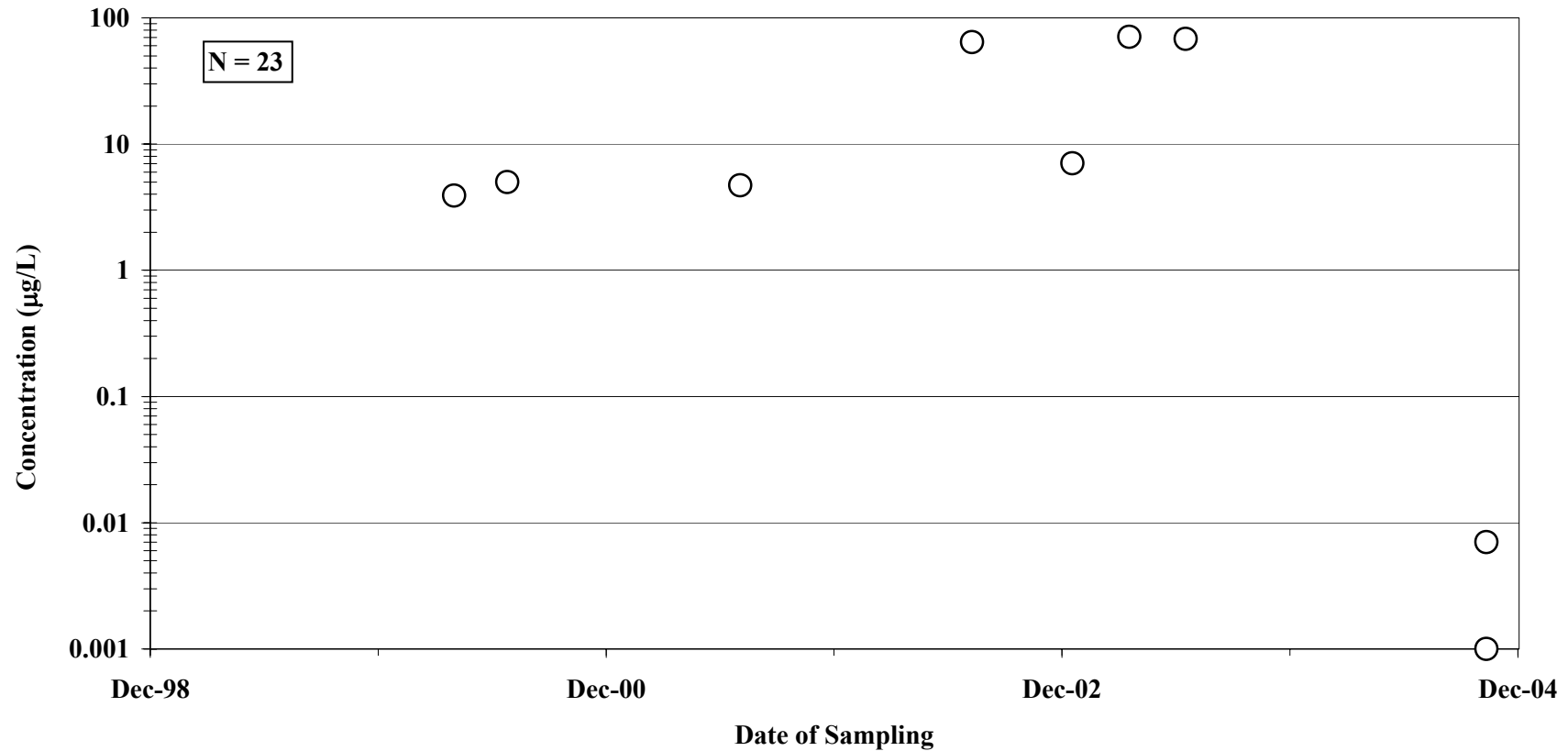


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-130**

**DISSOLVED THALLIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

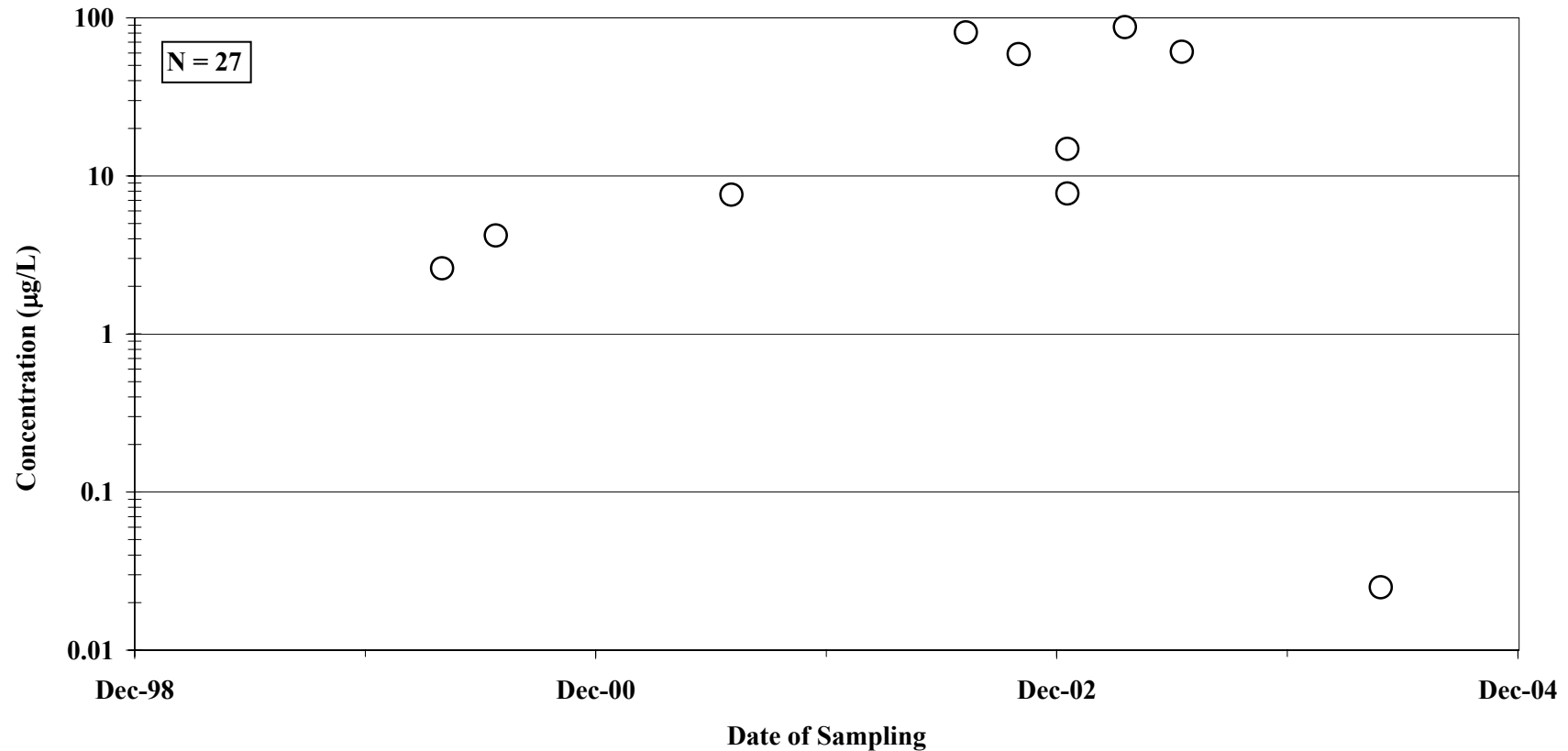


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-131**

**DISSOLVED THALLIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

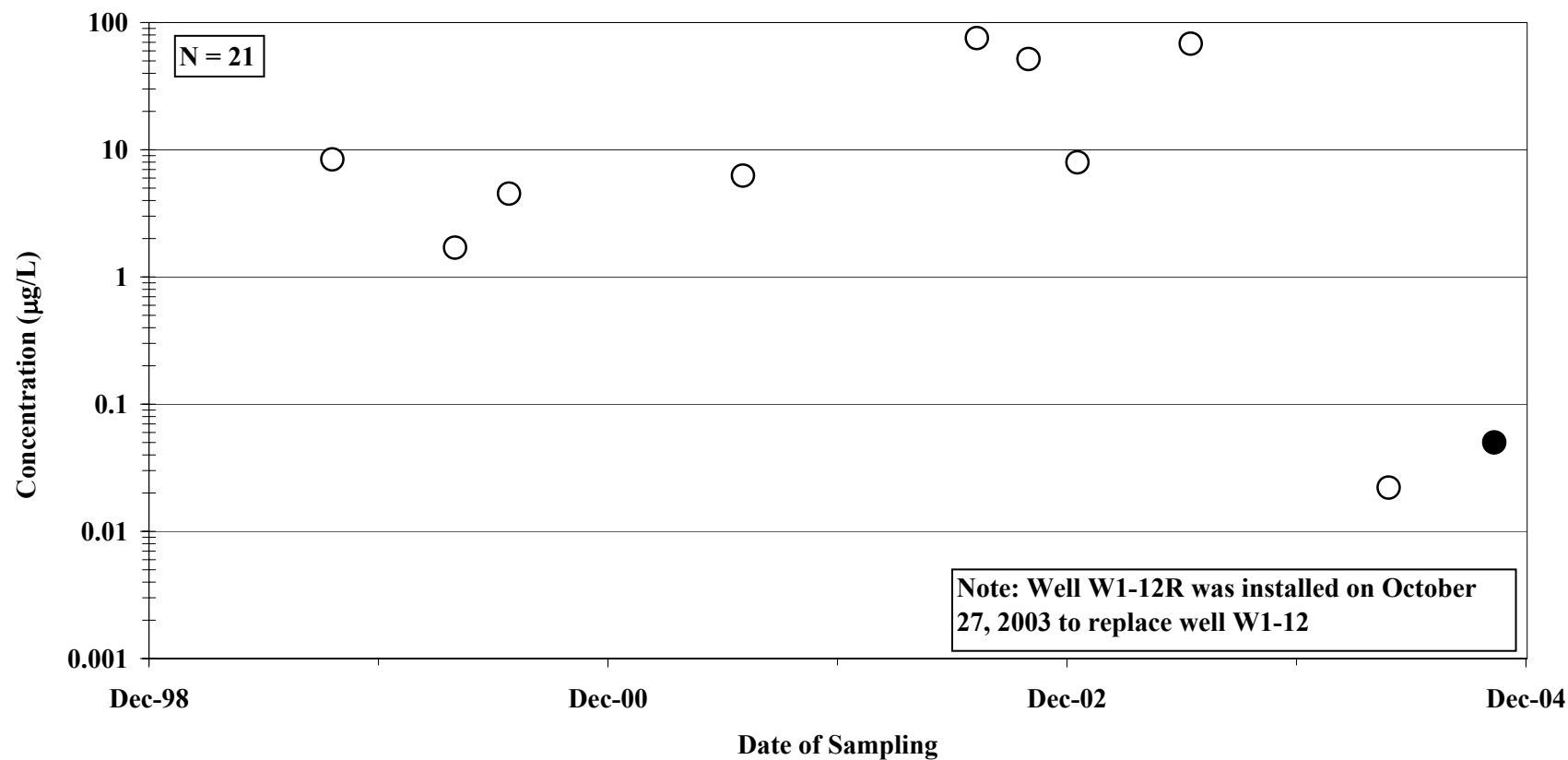


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-132**

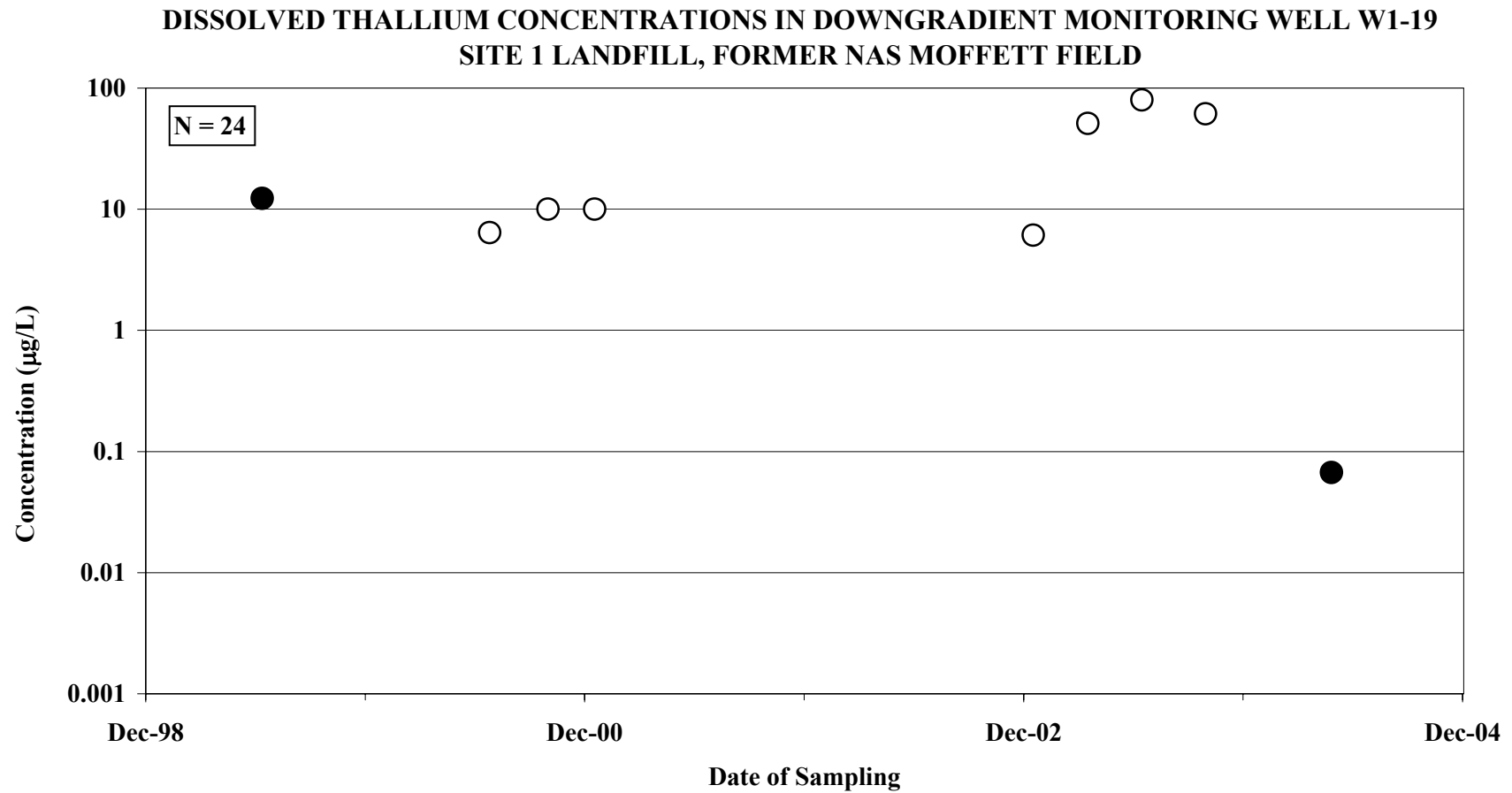
**DISSOLVED THALLIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-133**

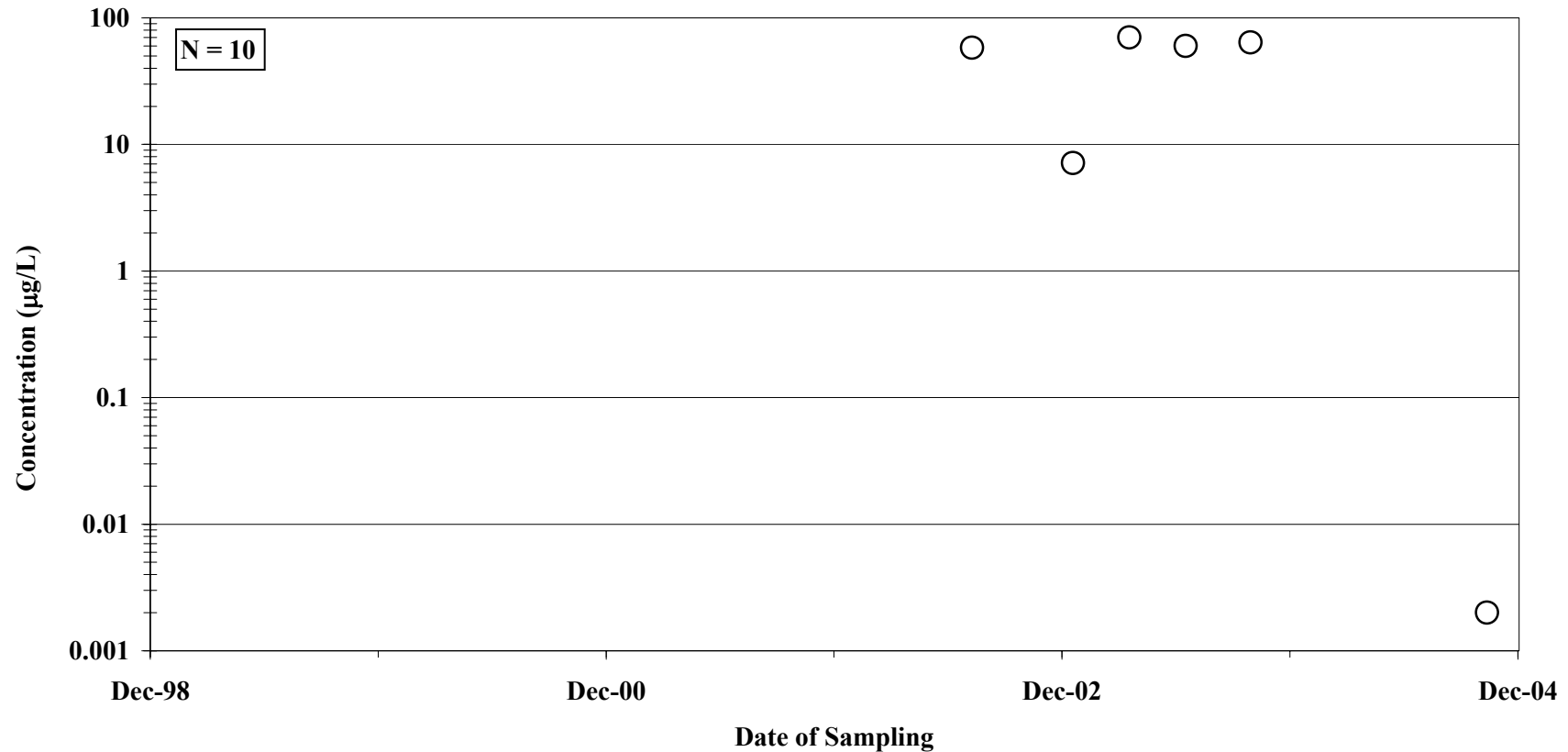


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-134**

**DISSOLVED THALLIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

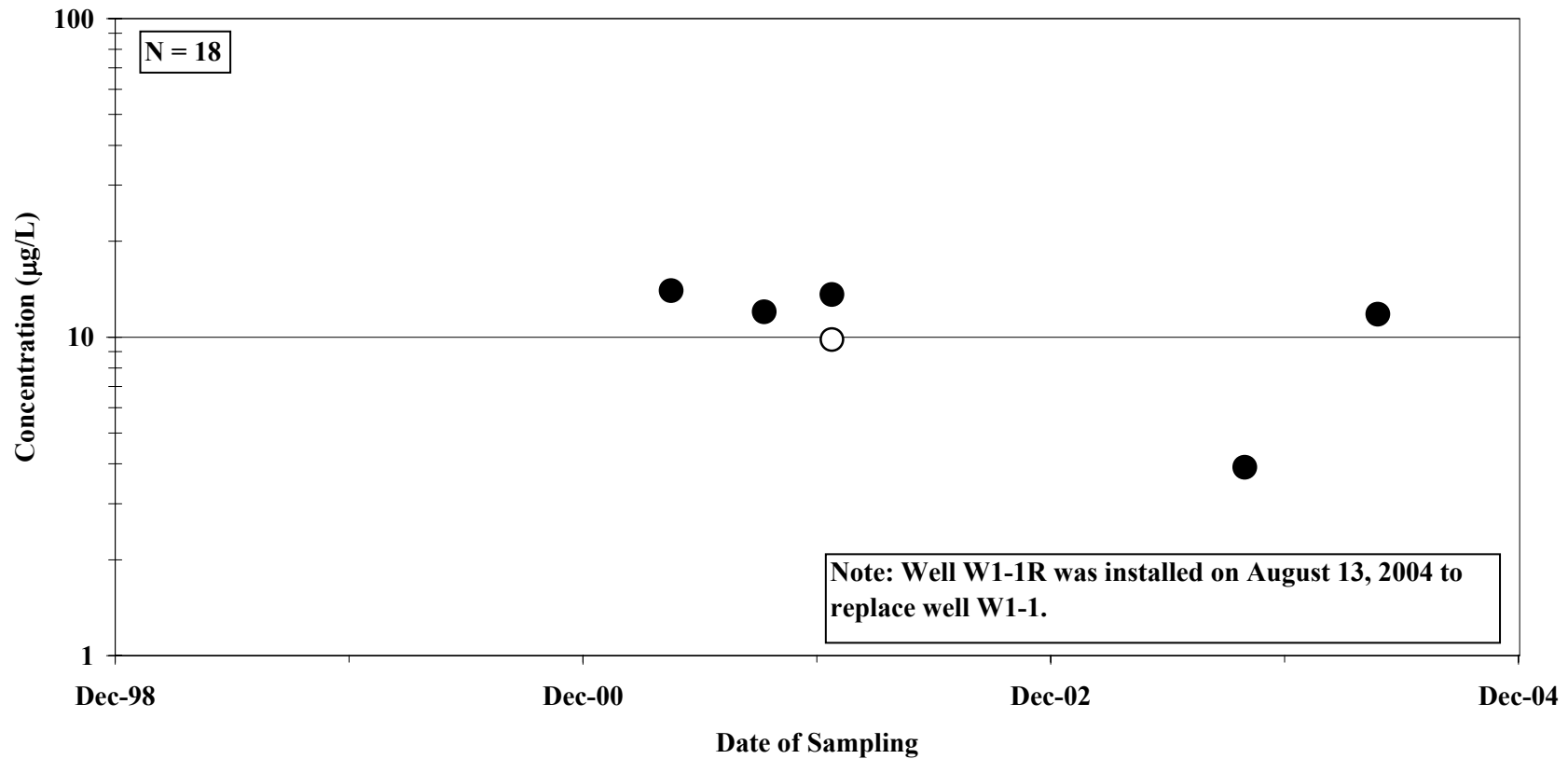


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-135**

**DISSOLVED VANADIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



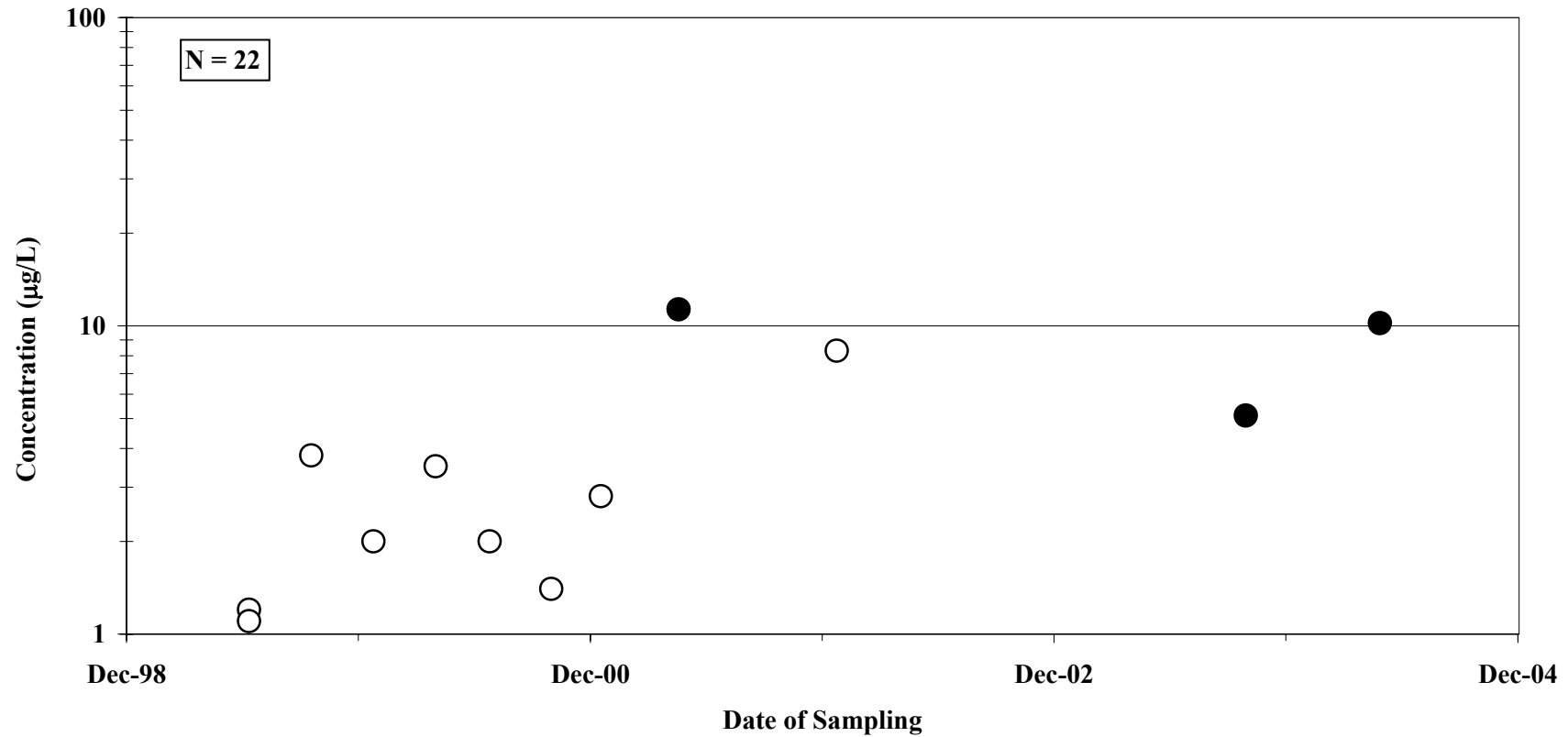
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-136**

**DISSOLVED VANADIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

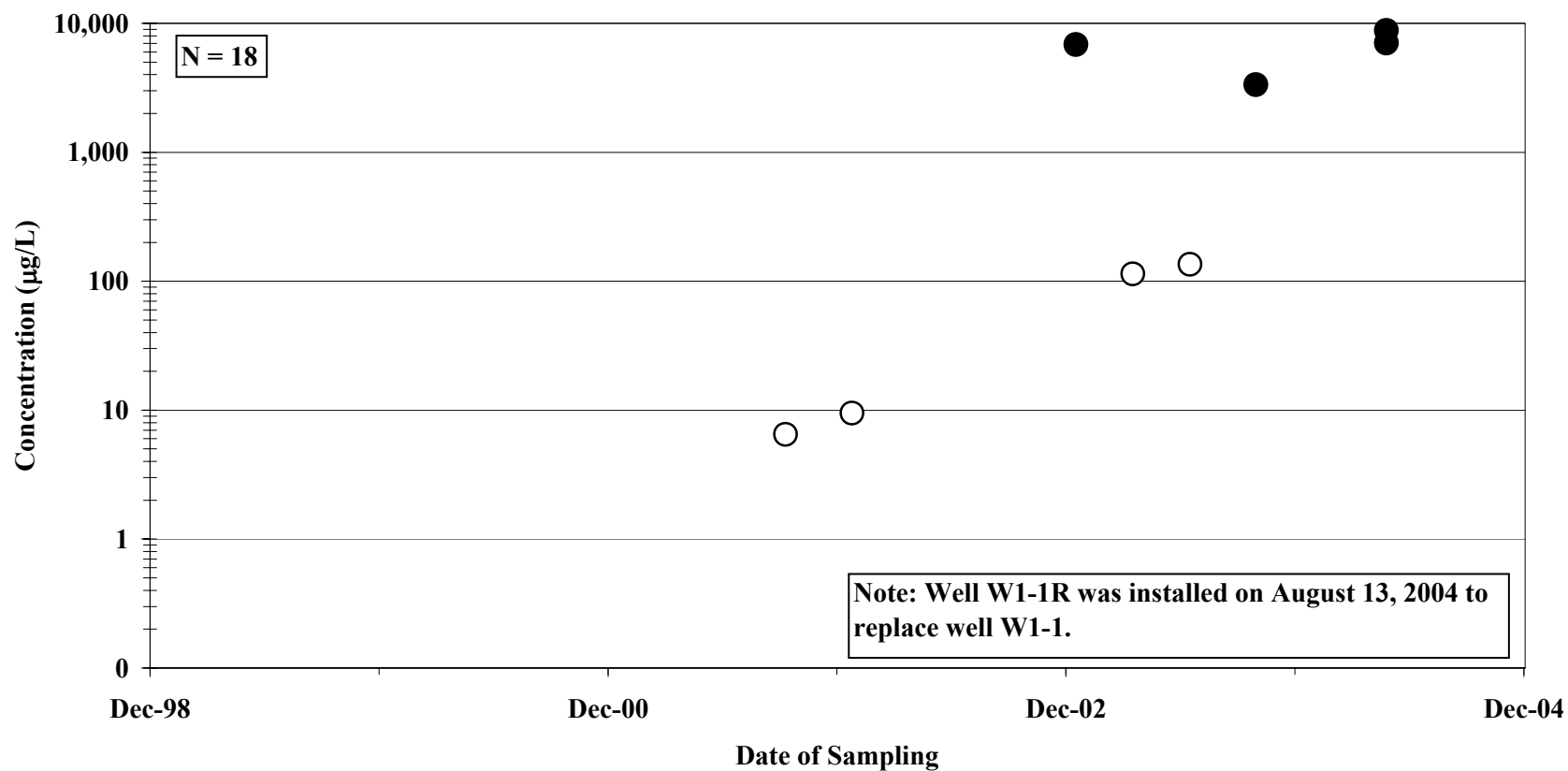


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

FIGURE E-137

DISSOLVED ZINC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD

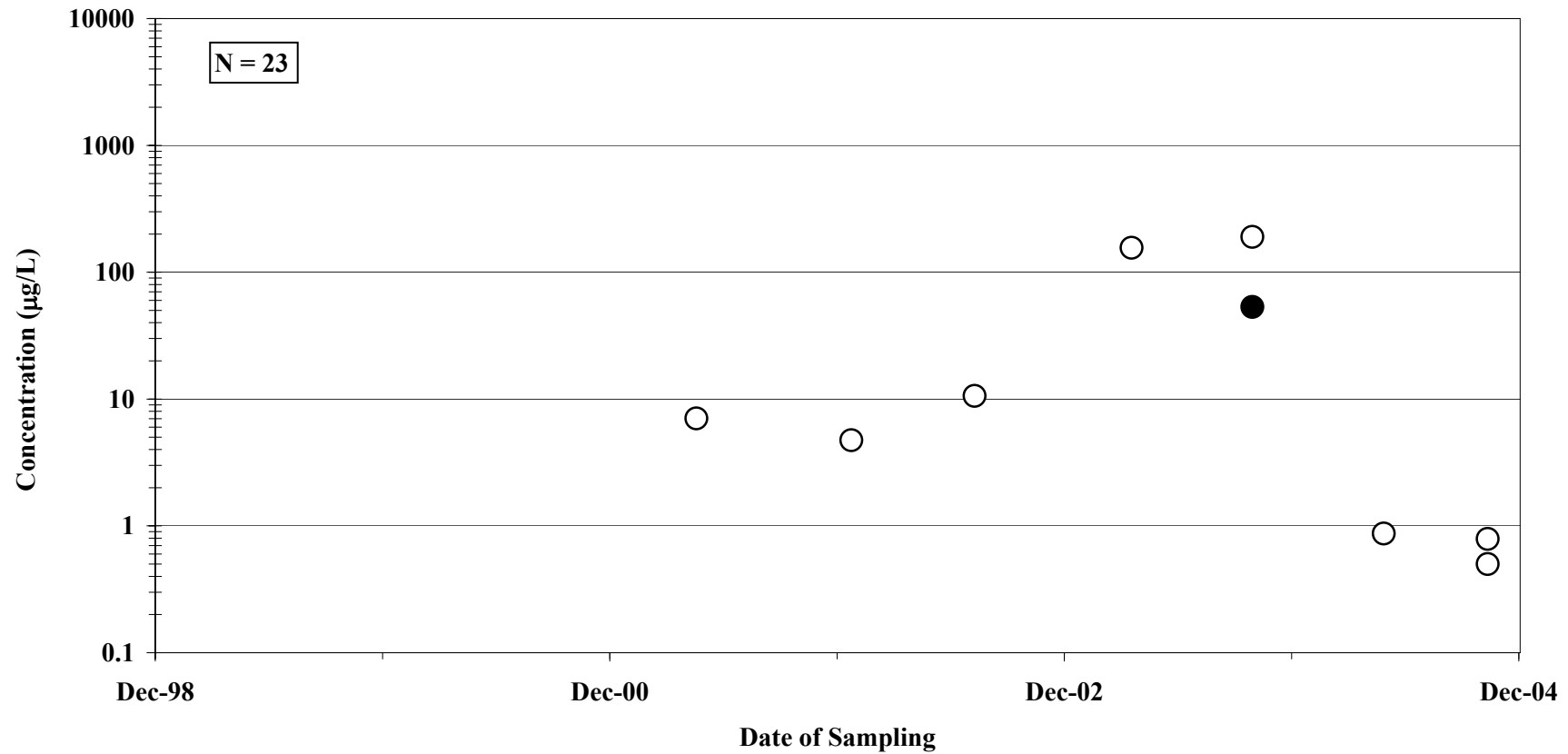


Notes:

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-138**

**DISSOLVED ZINC CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

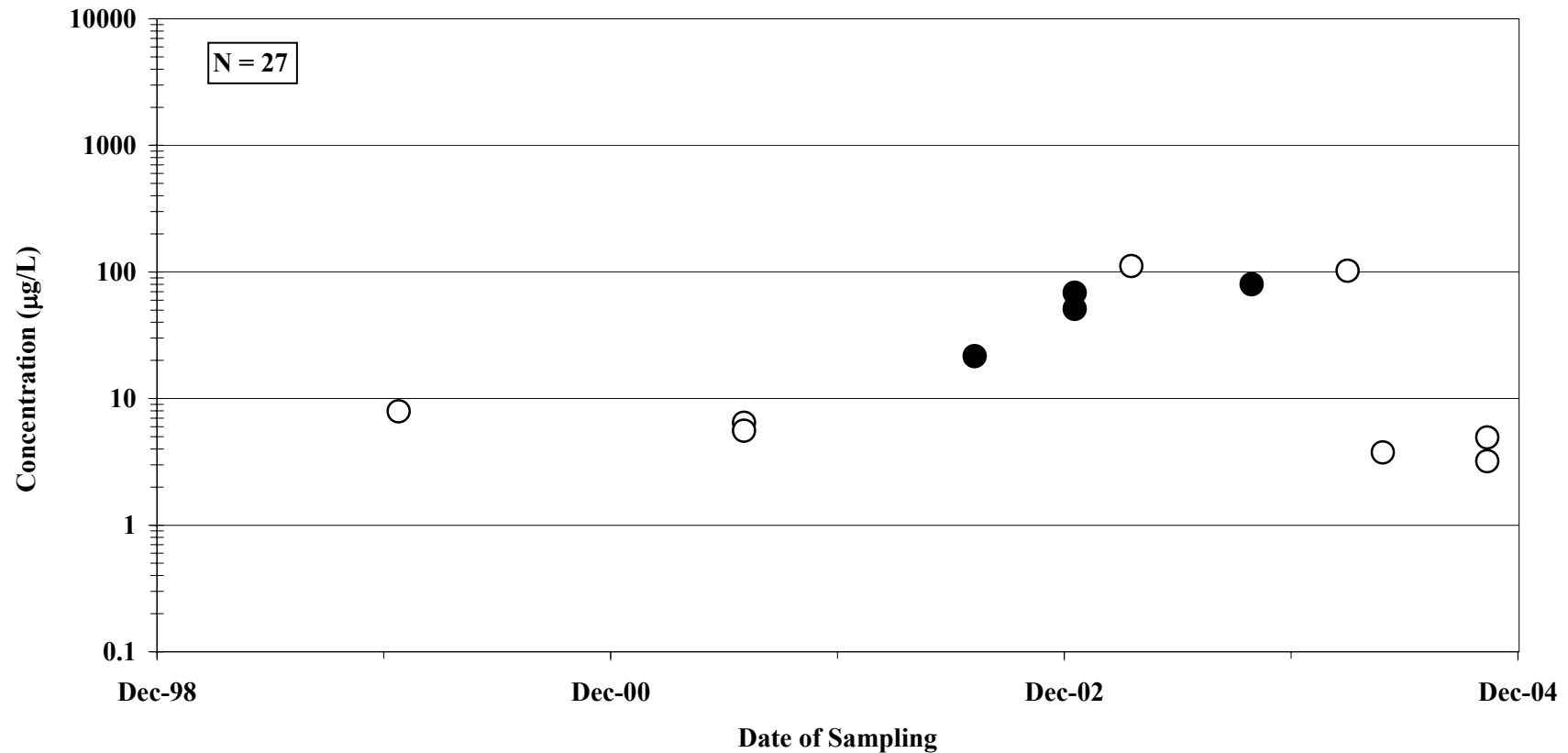


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-139**

**DISSOLVED ZINC CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

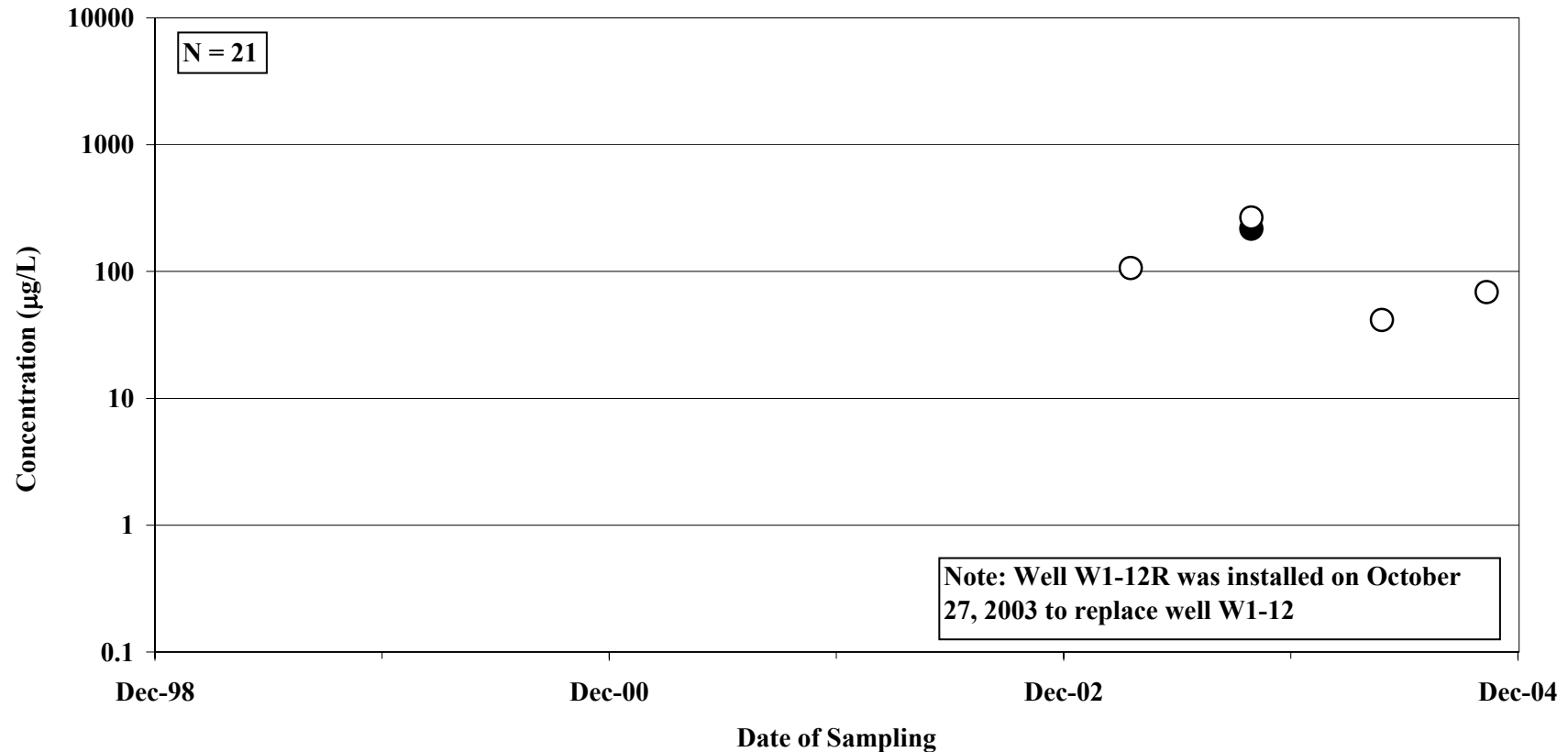


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-140**

**DISSOLVED ZINC CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

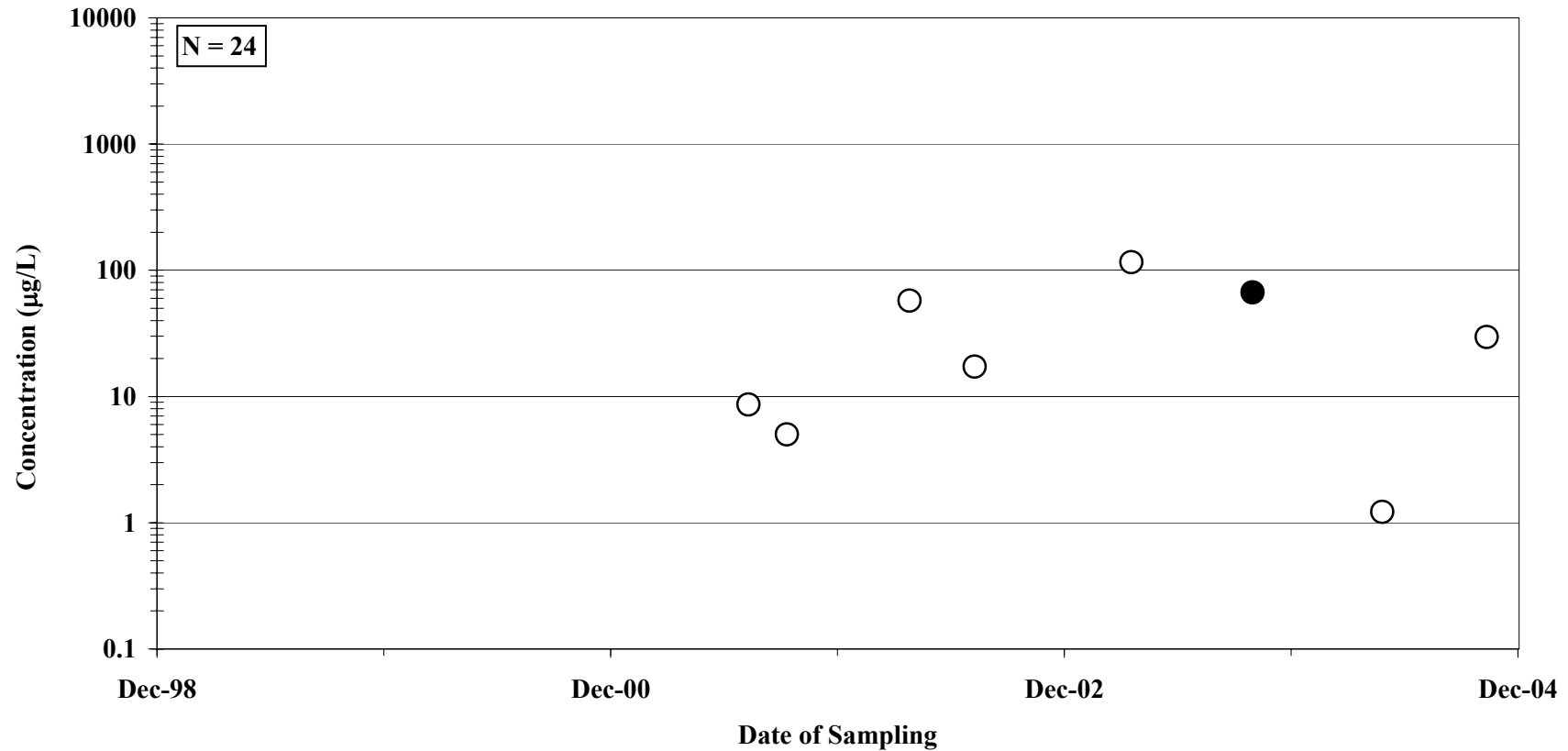


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-141**

**DISSOLVED ZINC CONCENTRATIONS IN DOWNGRADIANT MONITORING WELL W1-14  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

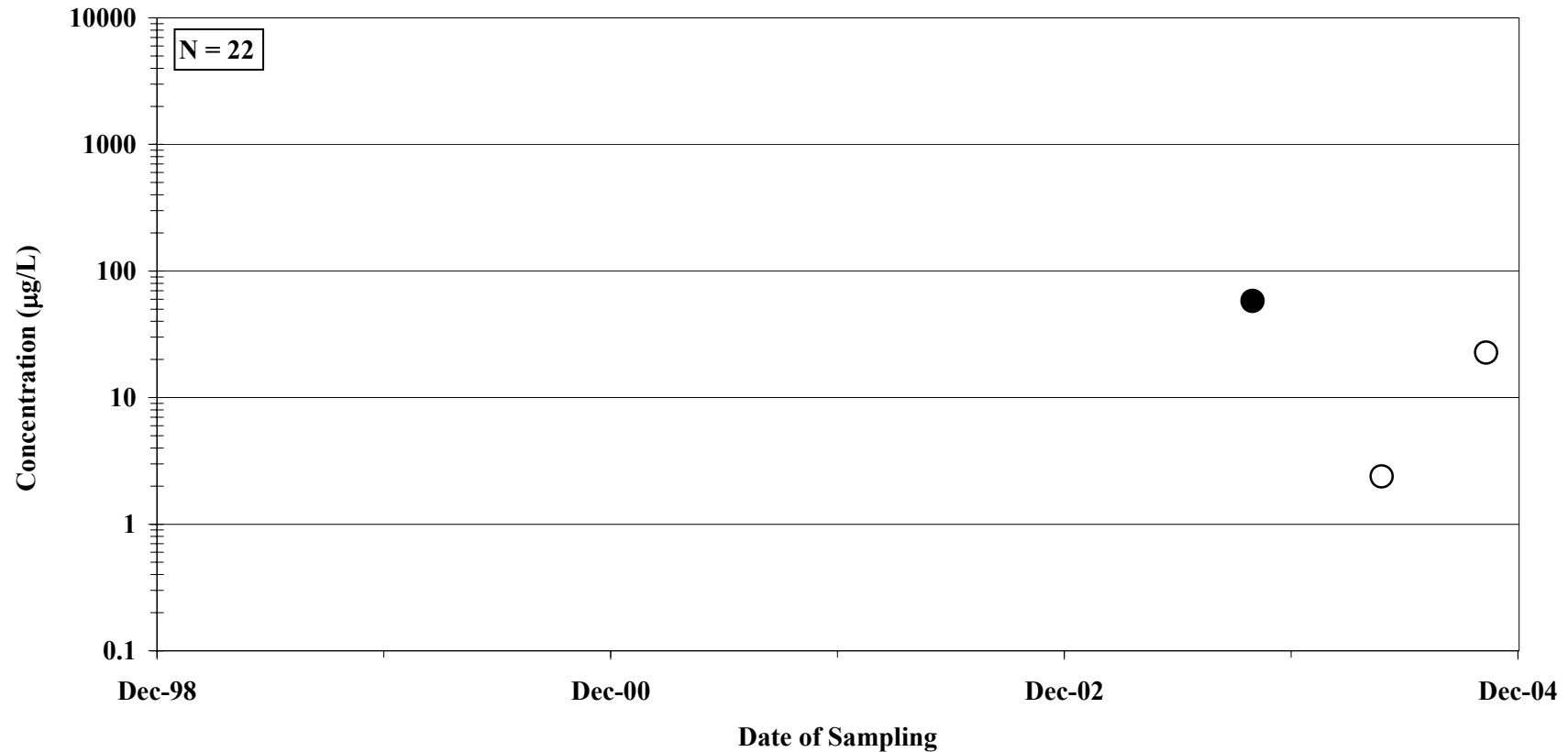


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-142**

**DISSOLVED ZINC CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-15  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

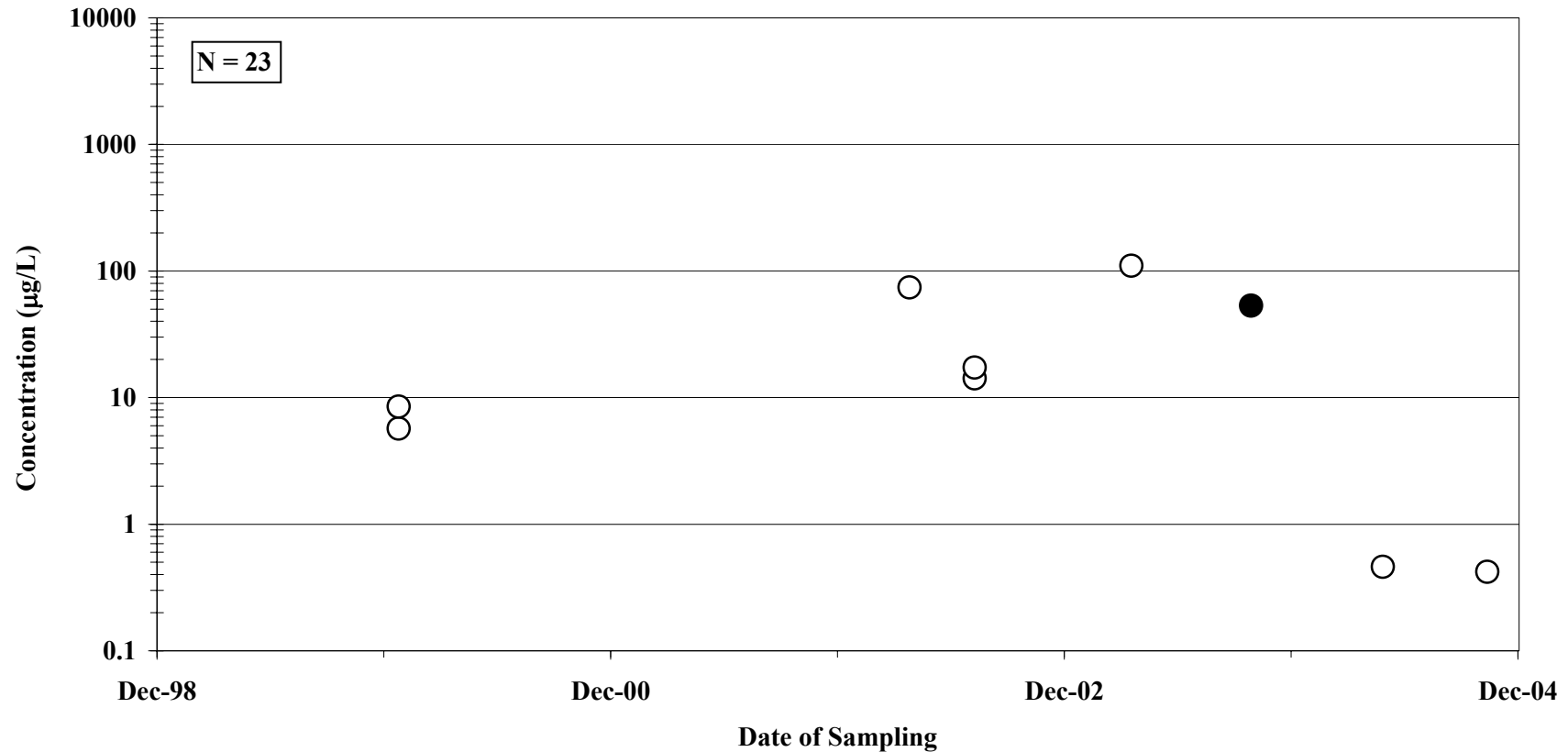


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-143**

**DISSOLVED ZINC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-16  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



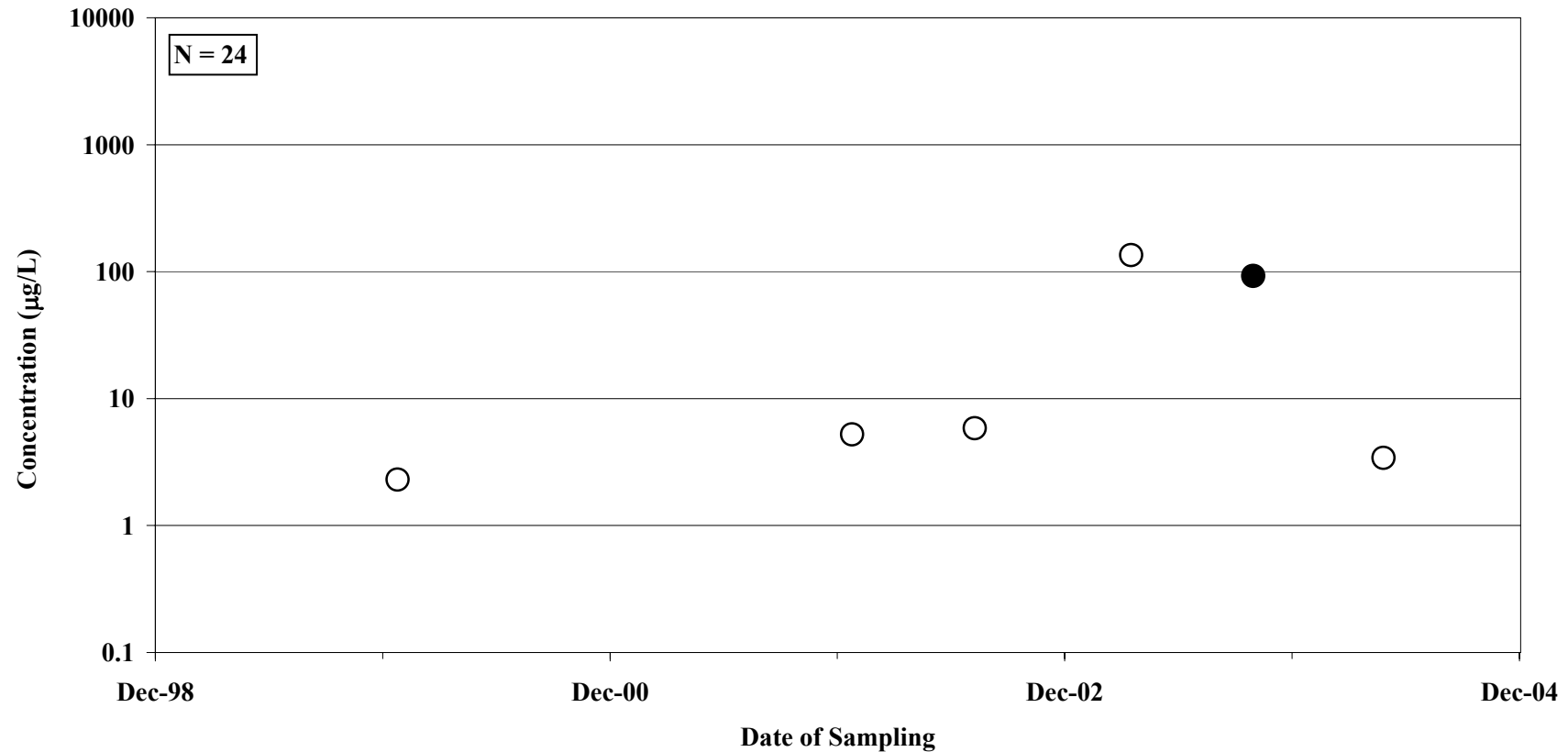
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-144**

**DISSOLVED ZINC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**

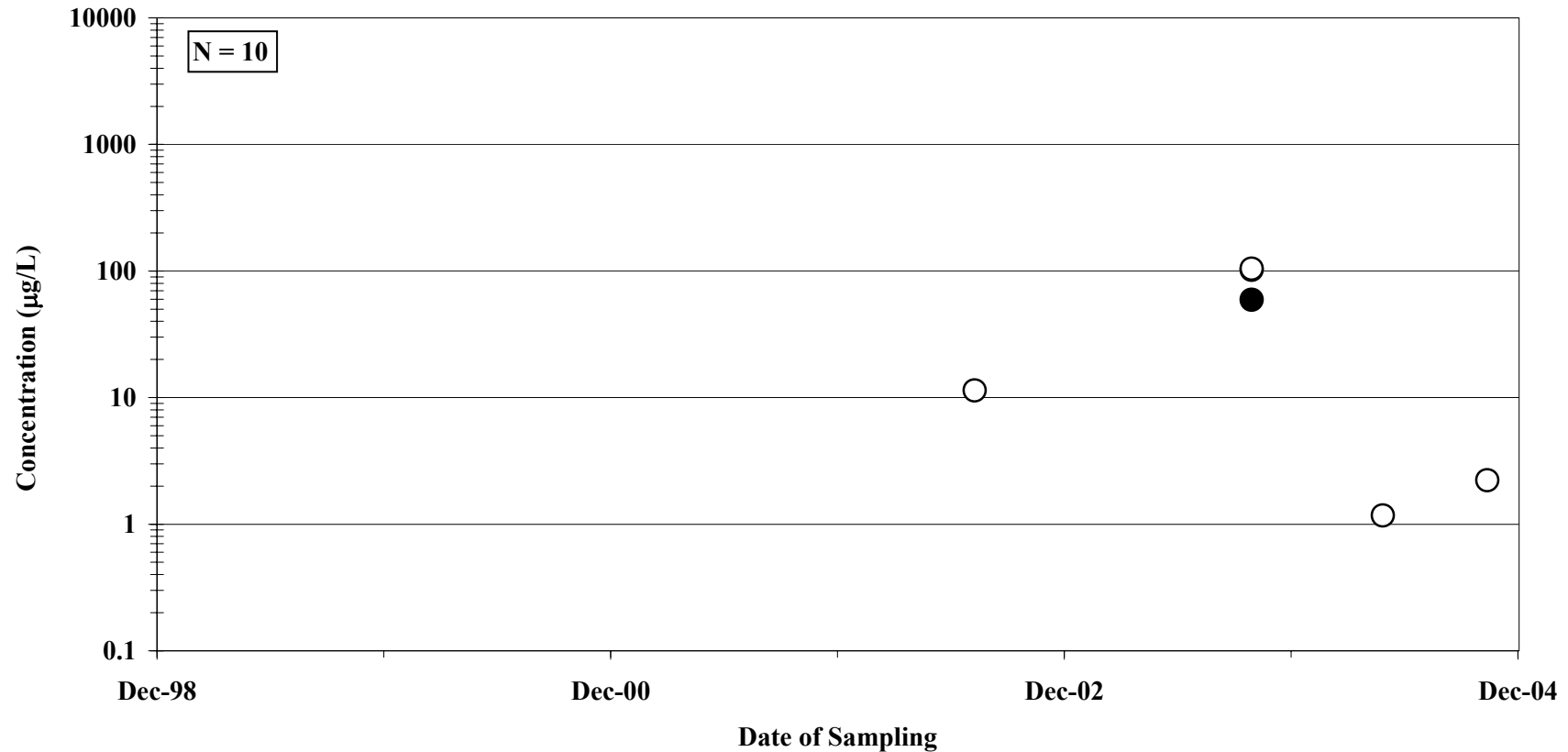


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-145**

**DISSOLVED ZINC CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24  
SITE 1 LANDFILL, FORMER NAS MOFFETT FIELD**



**Notes:**

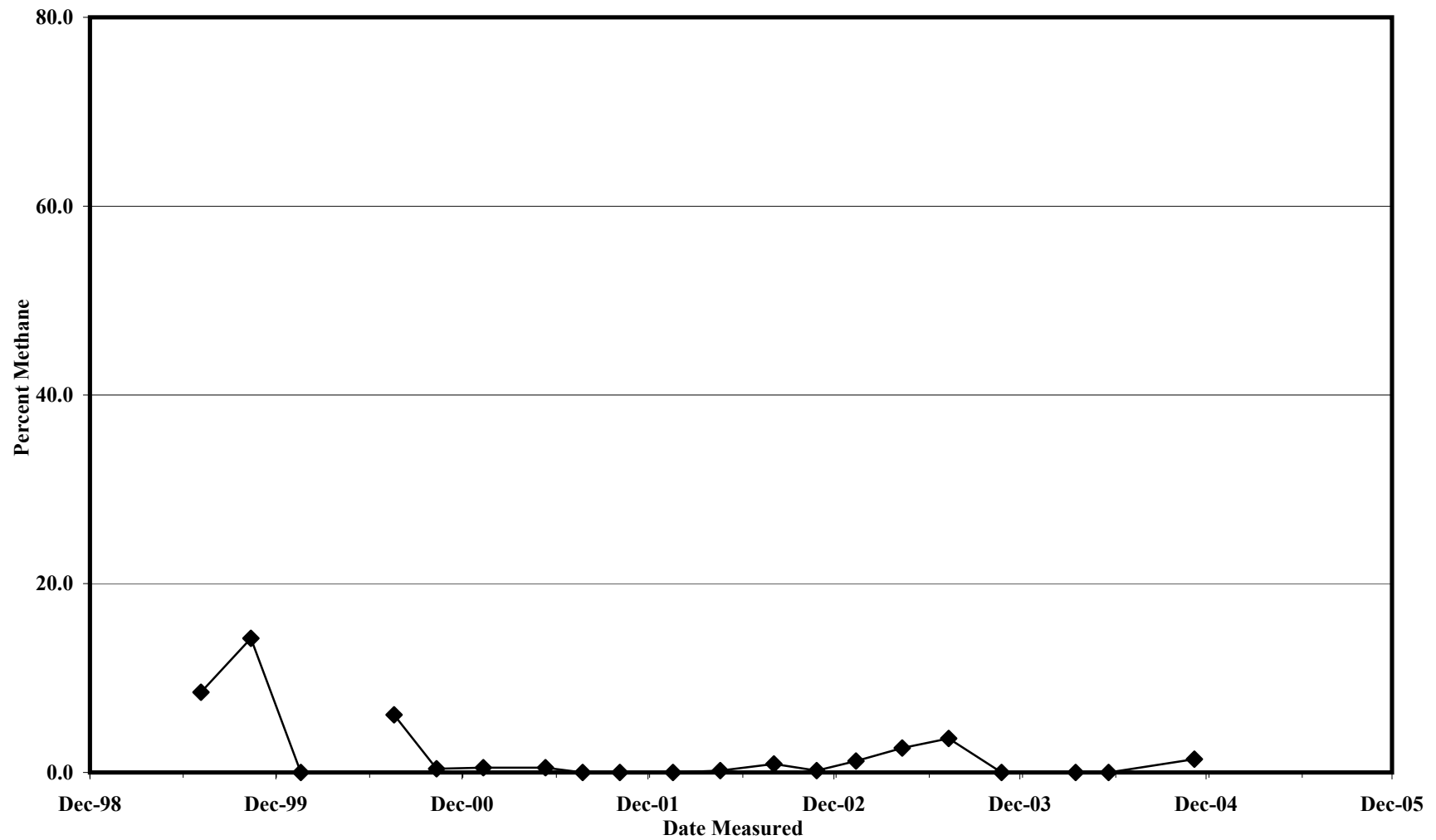
1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

## **APPENDIX F**

### **METHANE MONITORING DATA GRAPHS**

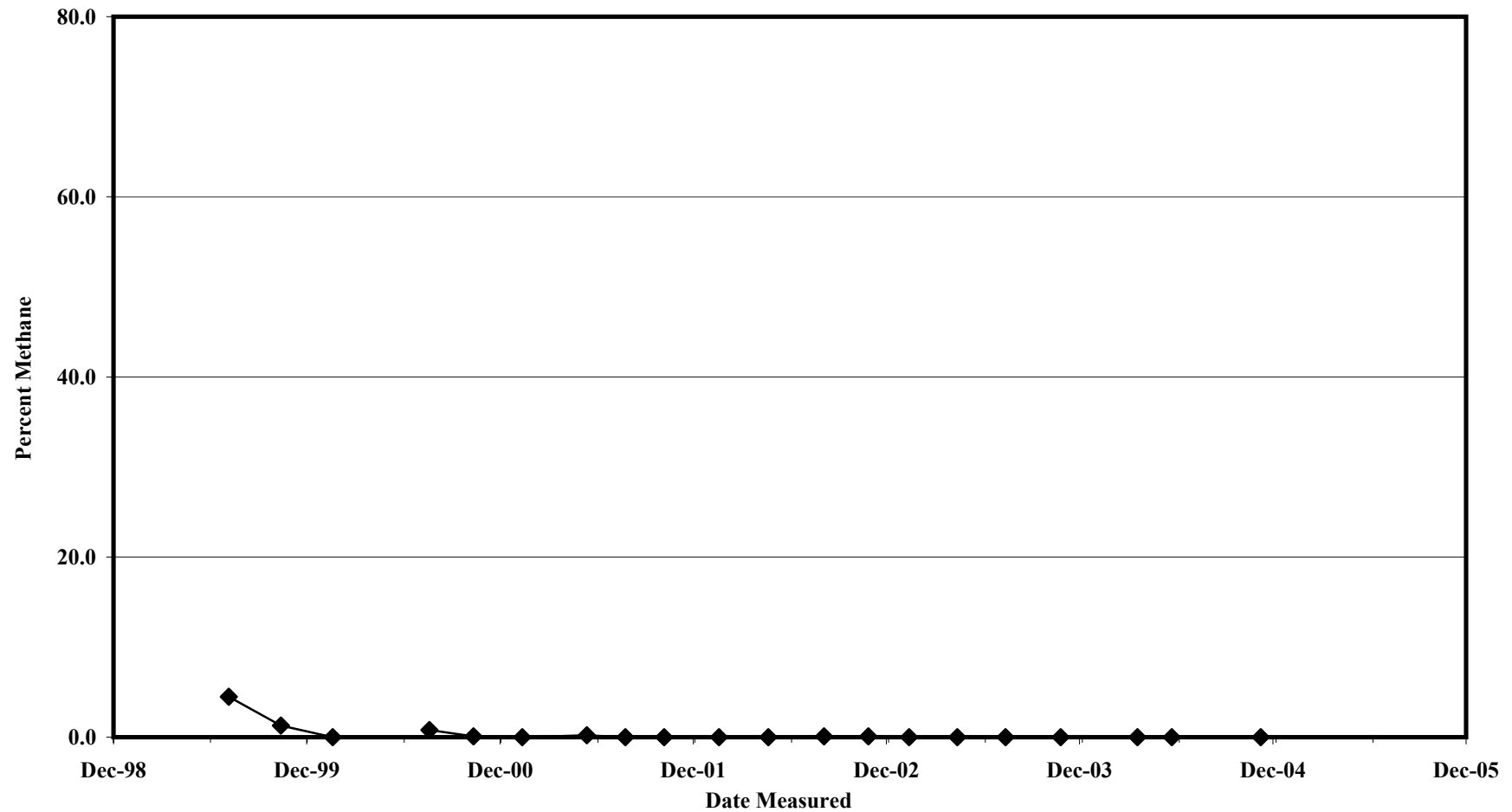
**FIGURE F-1**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-1**



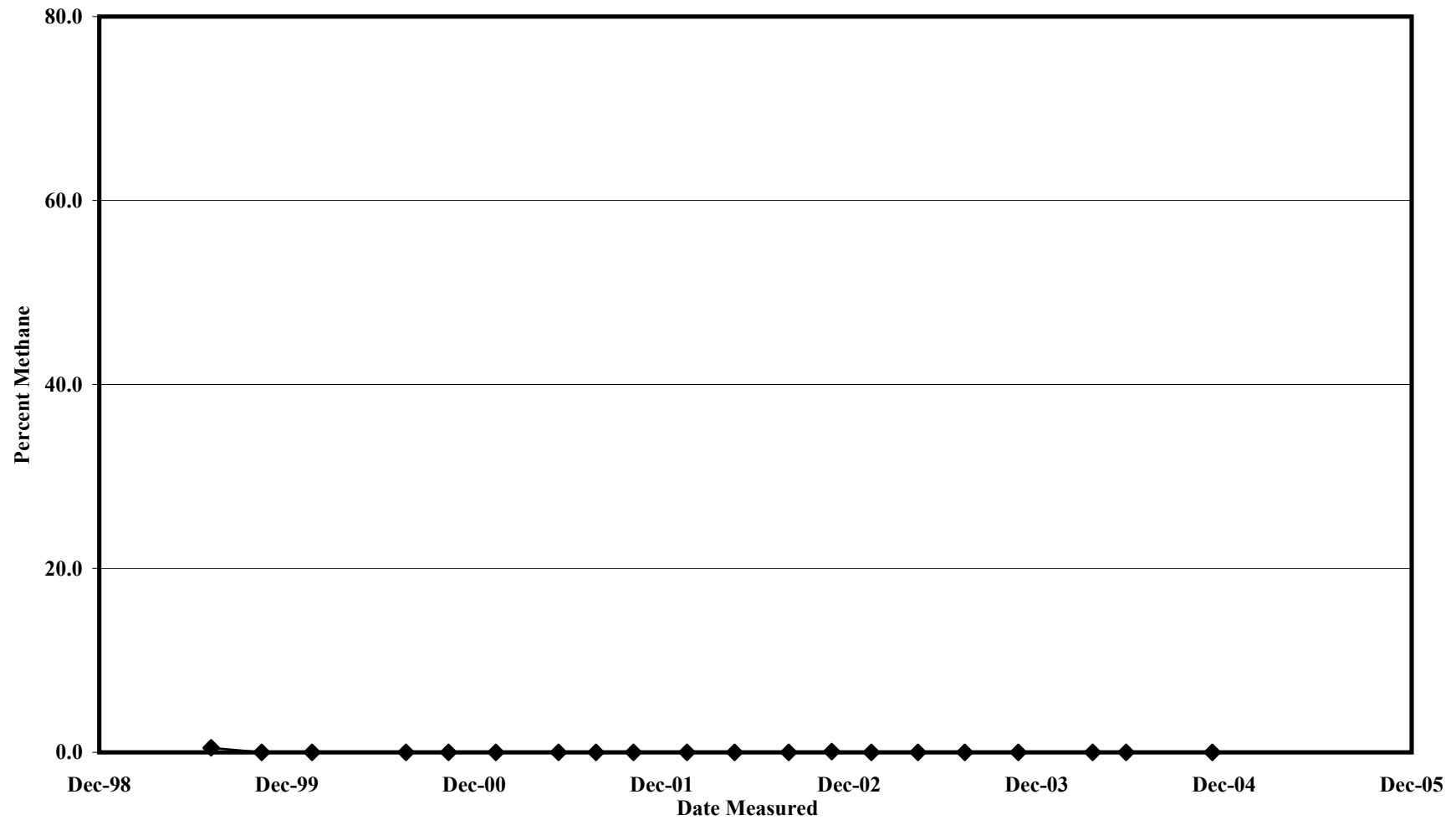
**FIGURE F-2**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-2**



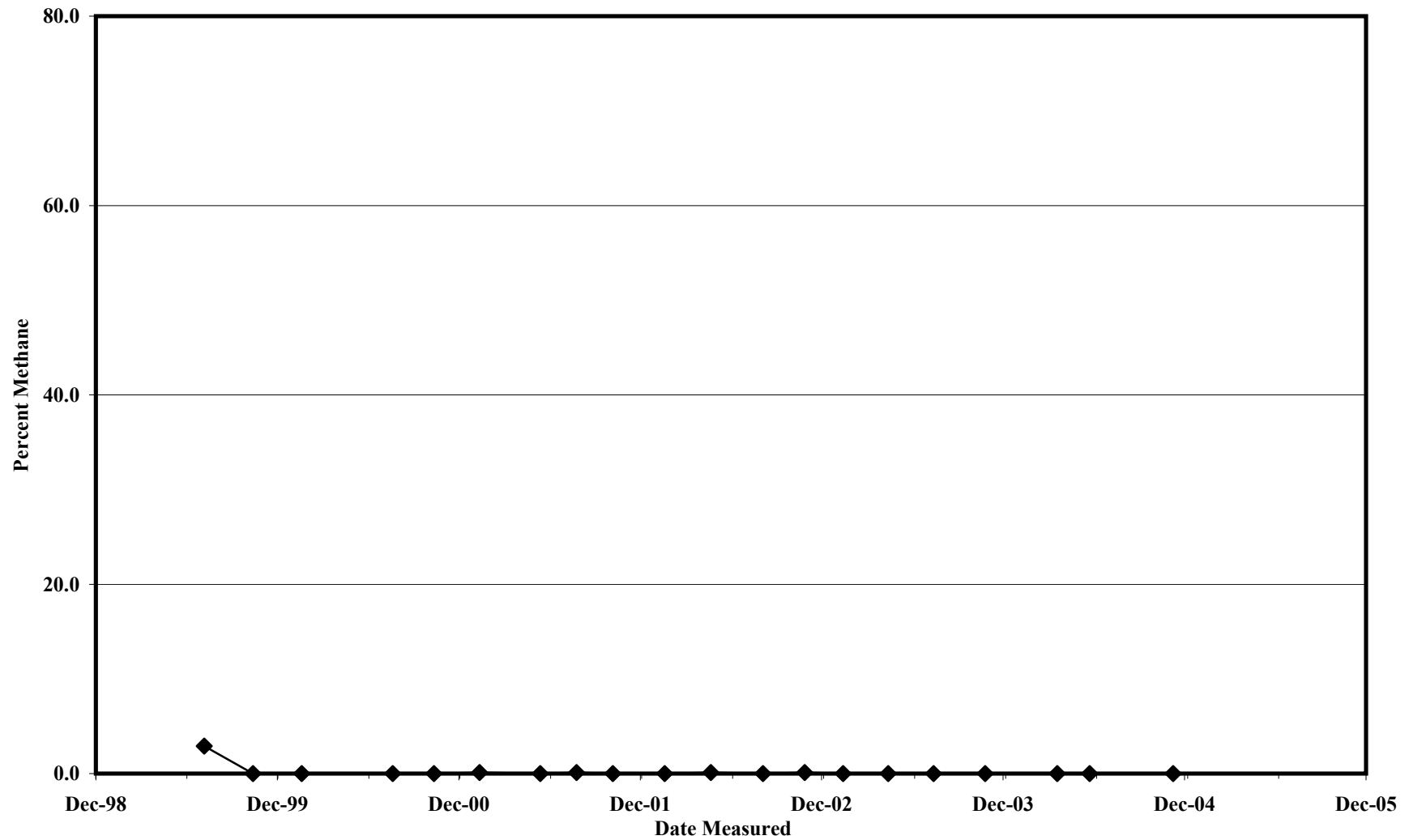
**FIGURE F-3**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-3**



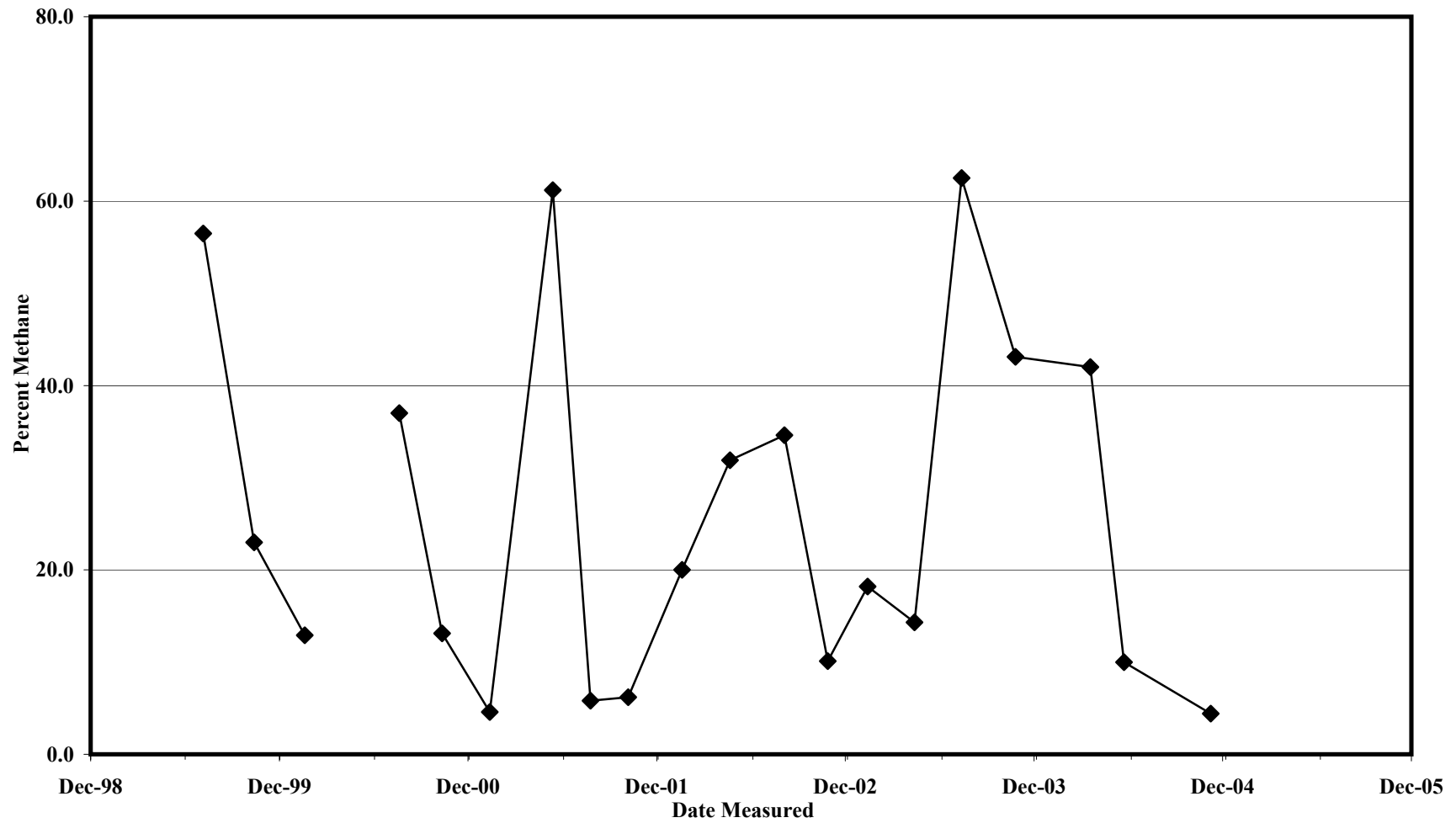
**FIGURE F-4**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-4**



**FIGURE F-5**

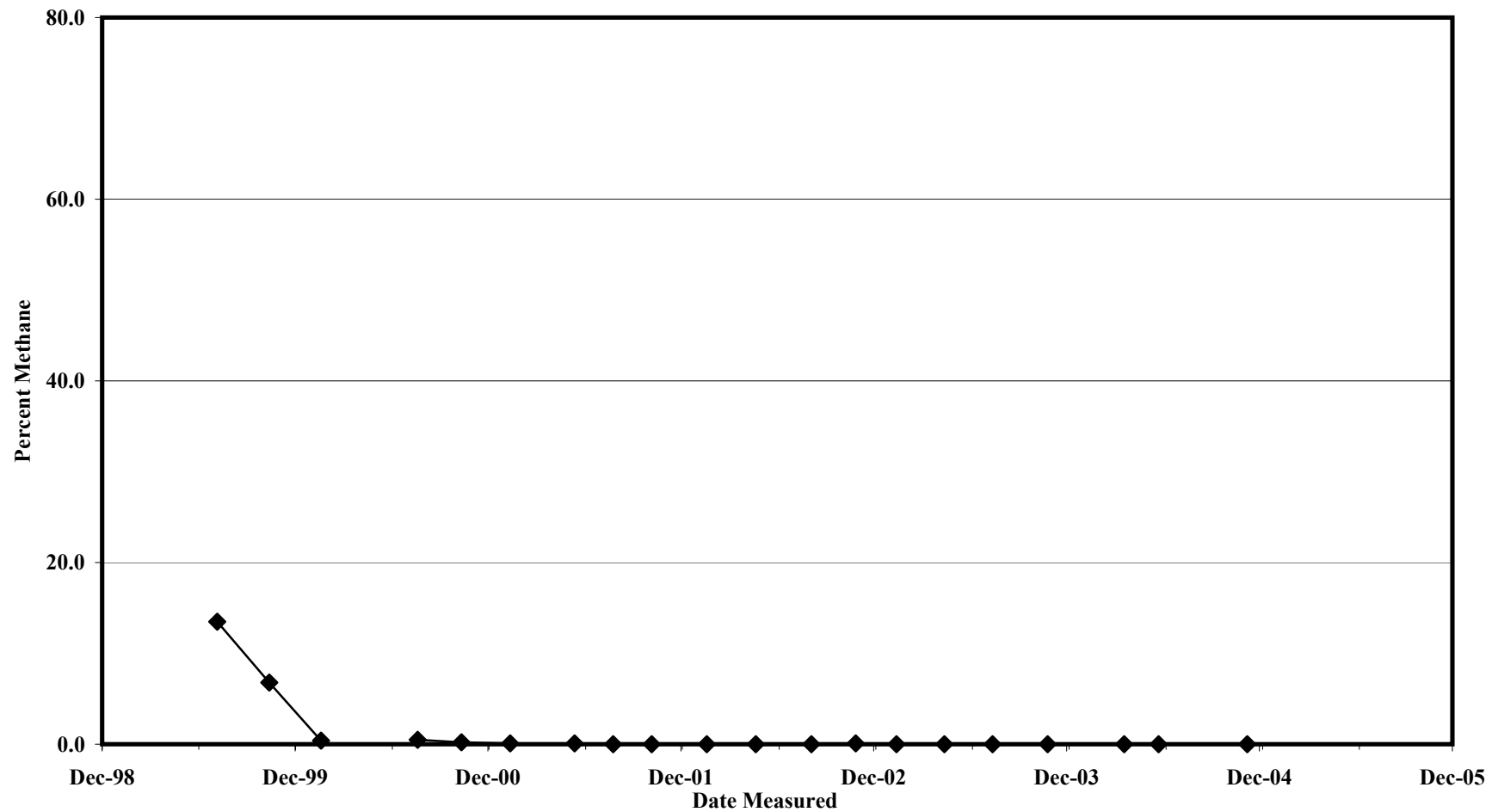
**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-5**





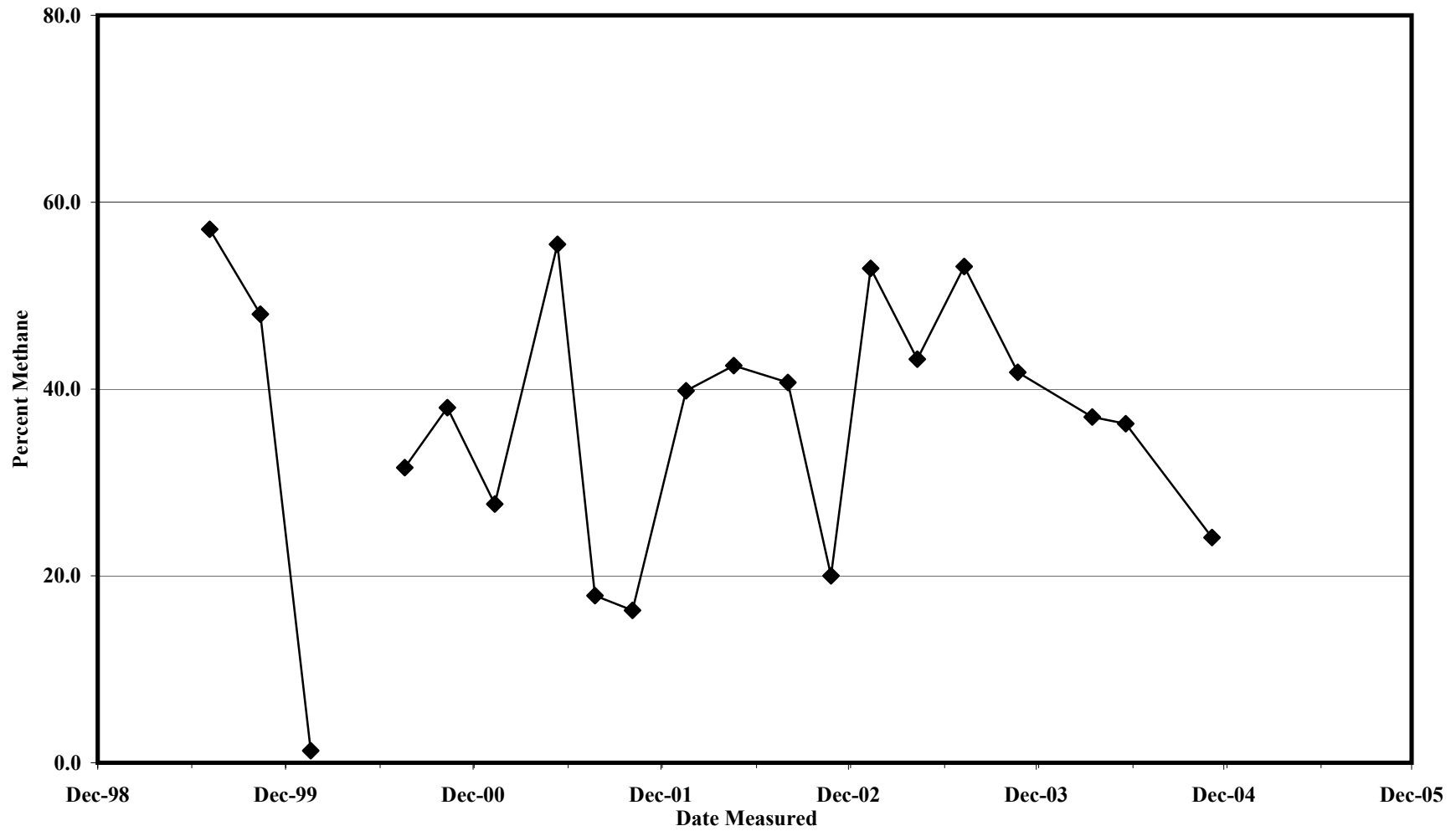
**FIGURE F-6**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-6**



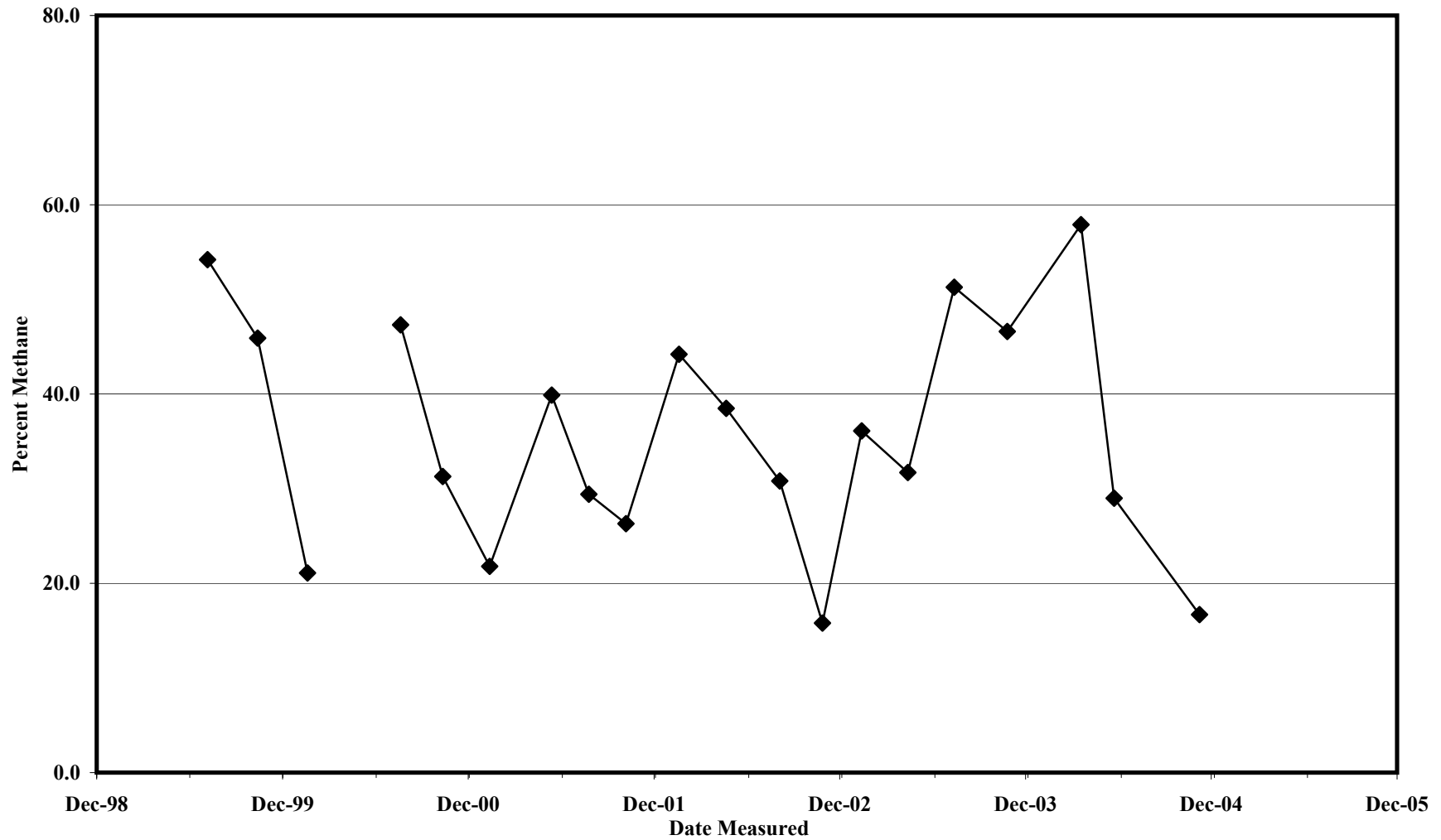
**FIGURE F-7**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-7**



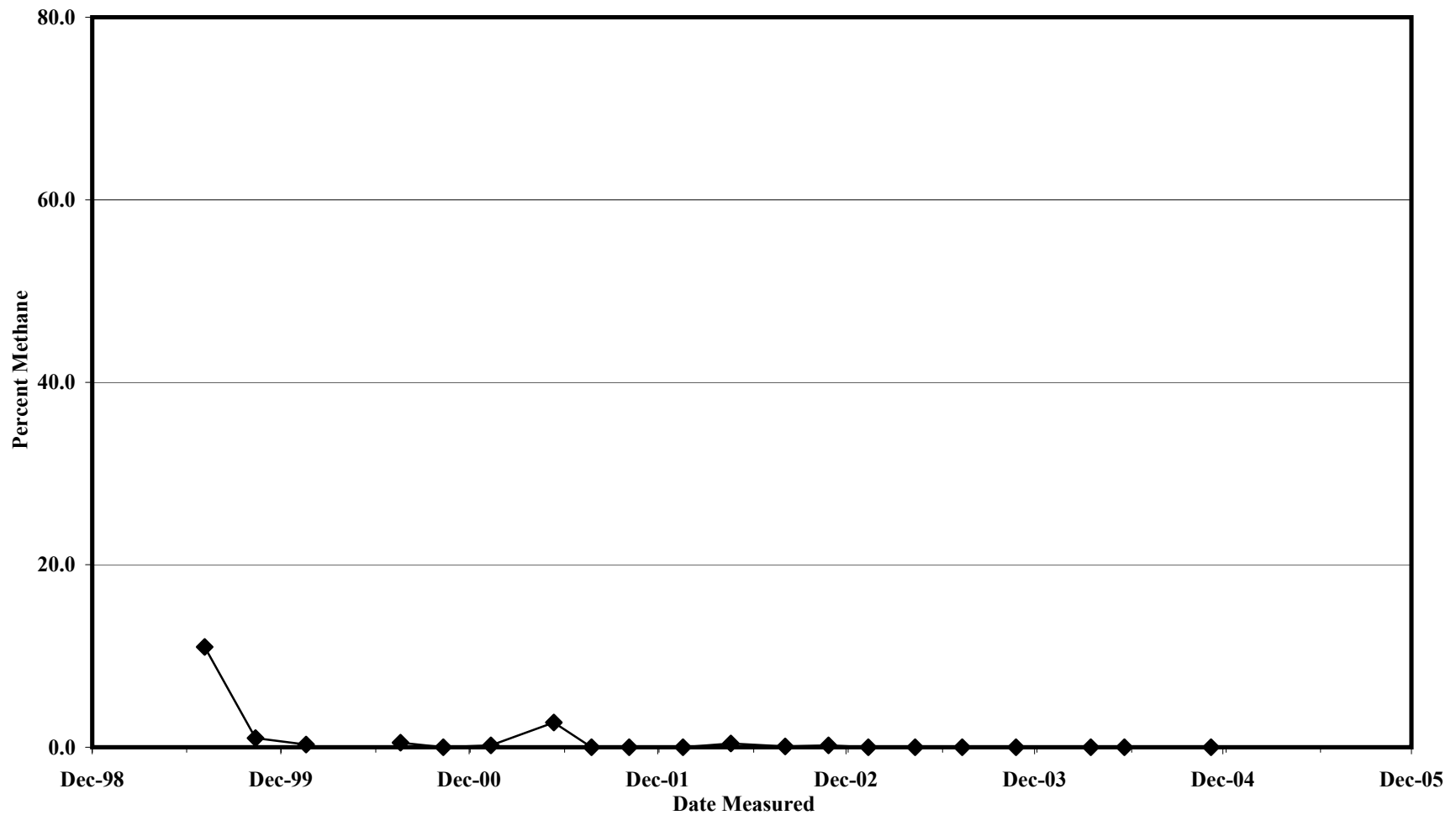
**FIGURE F-8**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-8**



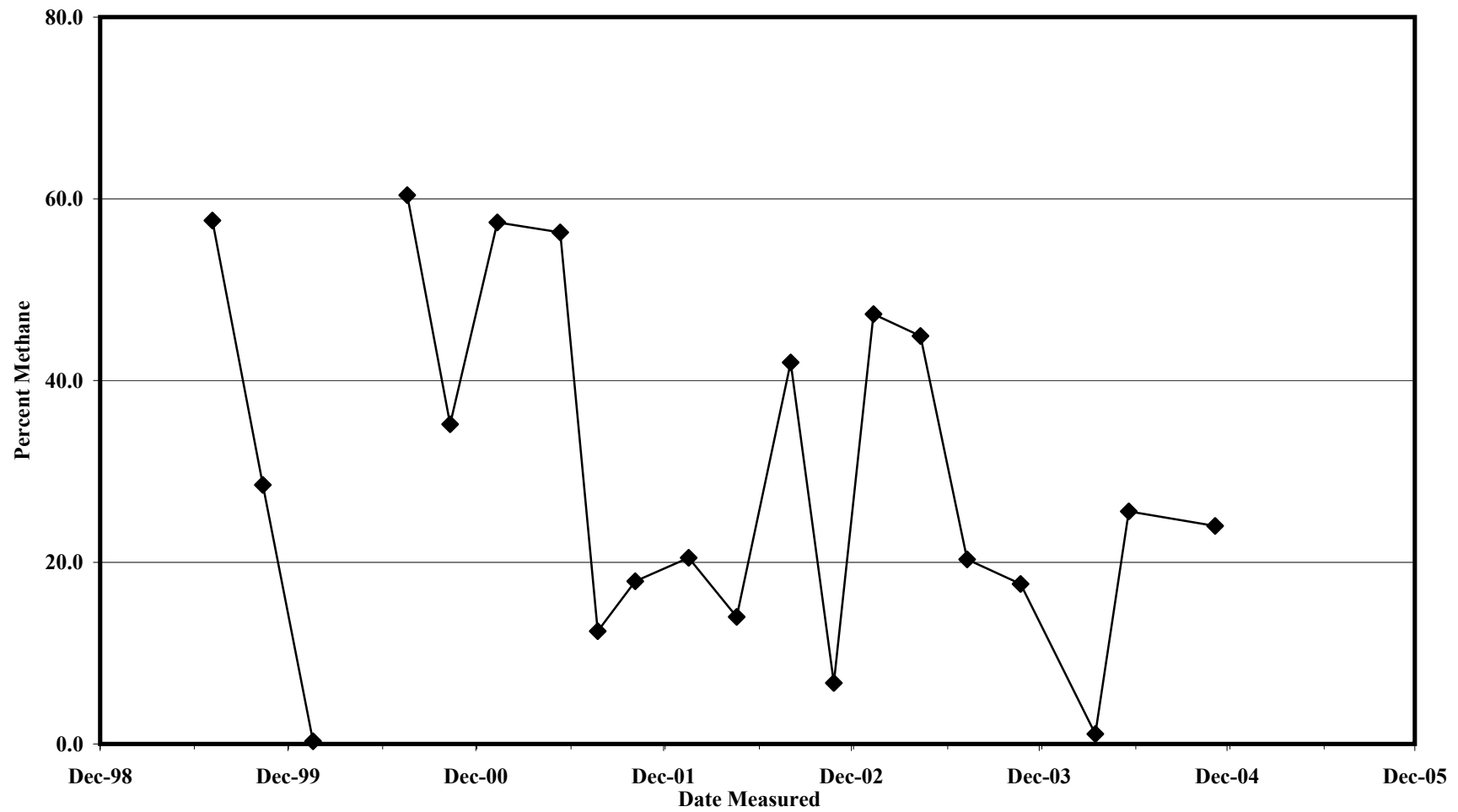
**FIGURE F-9**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-9**



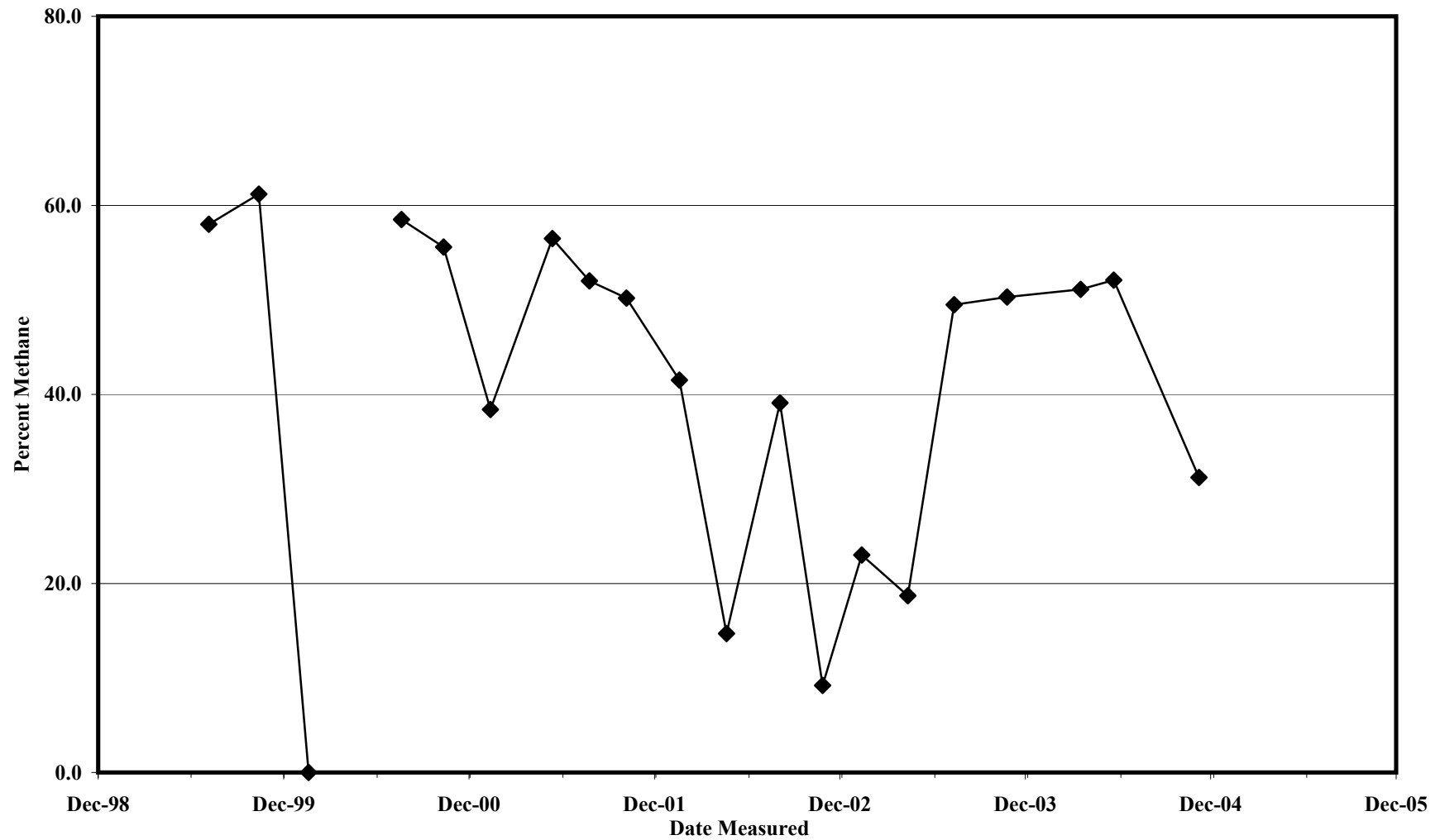
**FIGURE F-10**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-10**



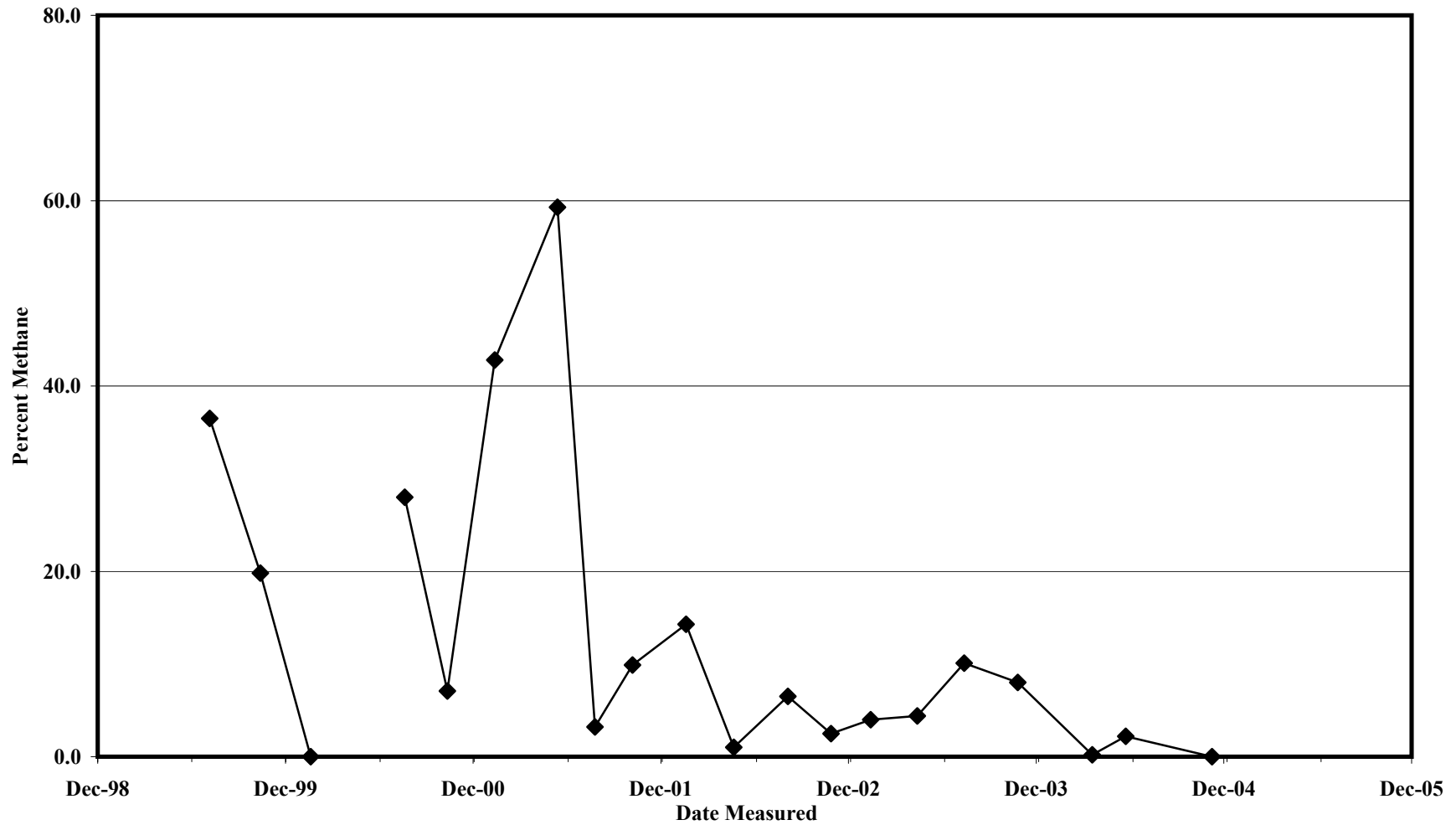
**FIGURE F-11**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-11**



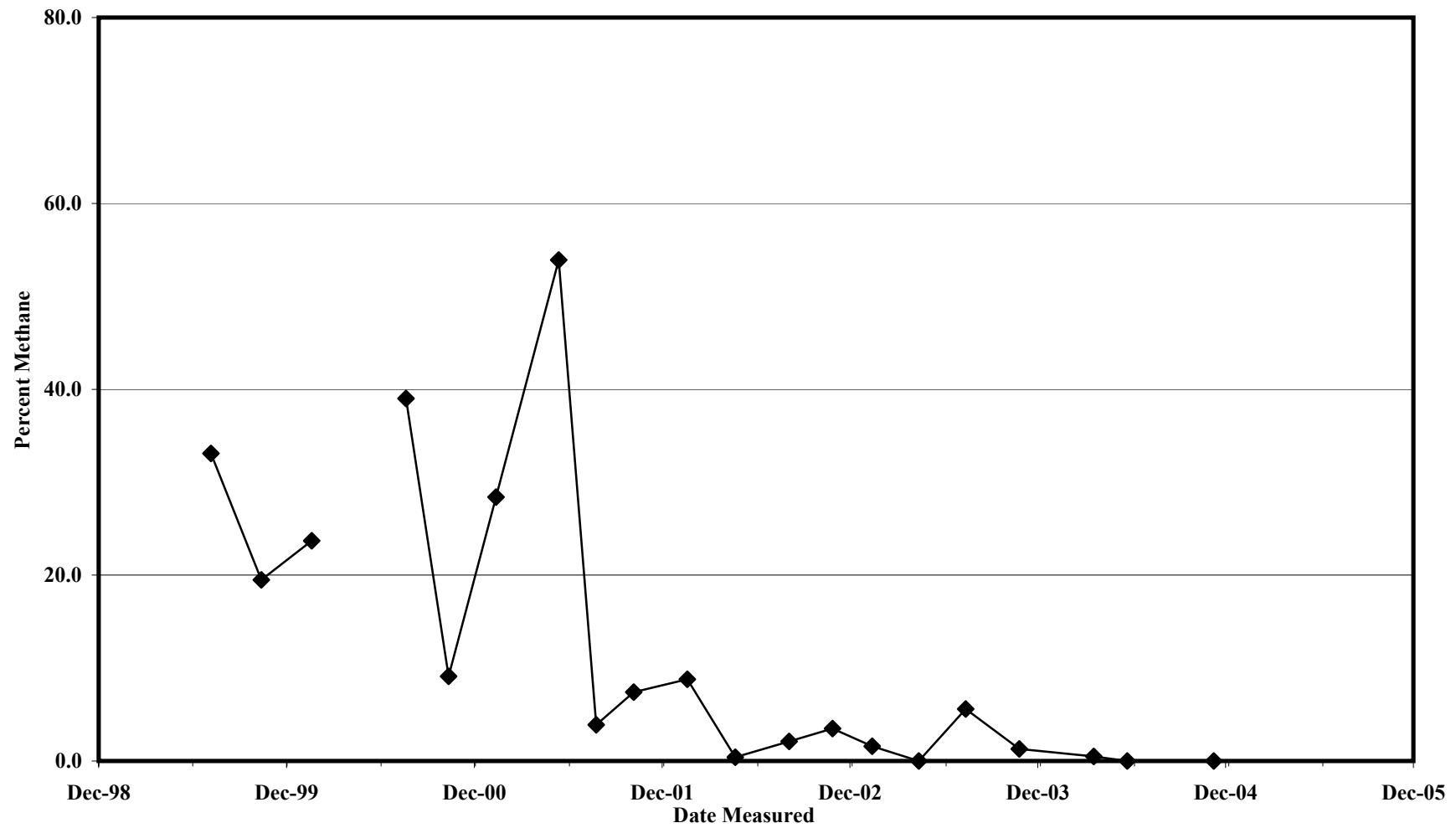
**FIGURE F-12**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-12**



**FIGURE F-13**

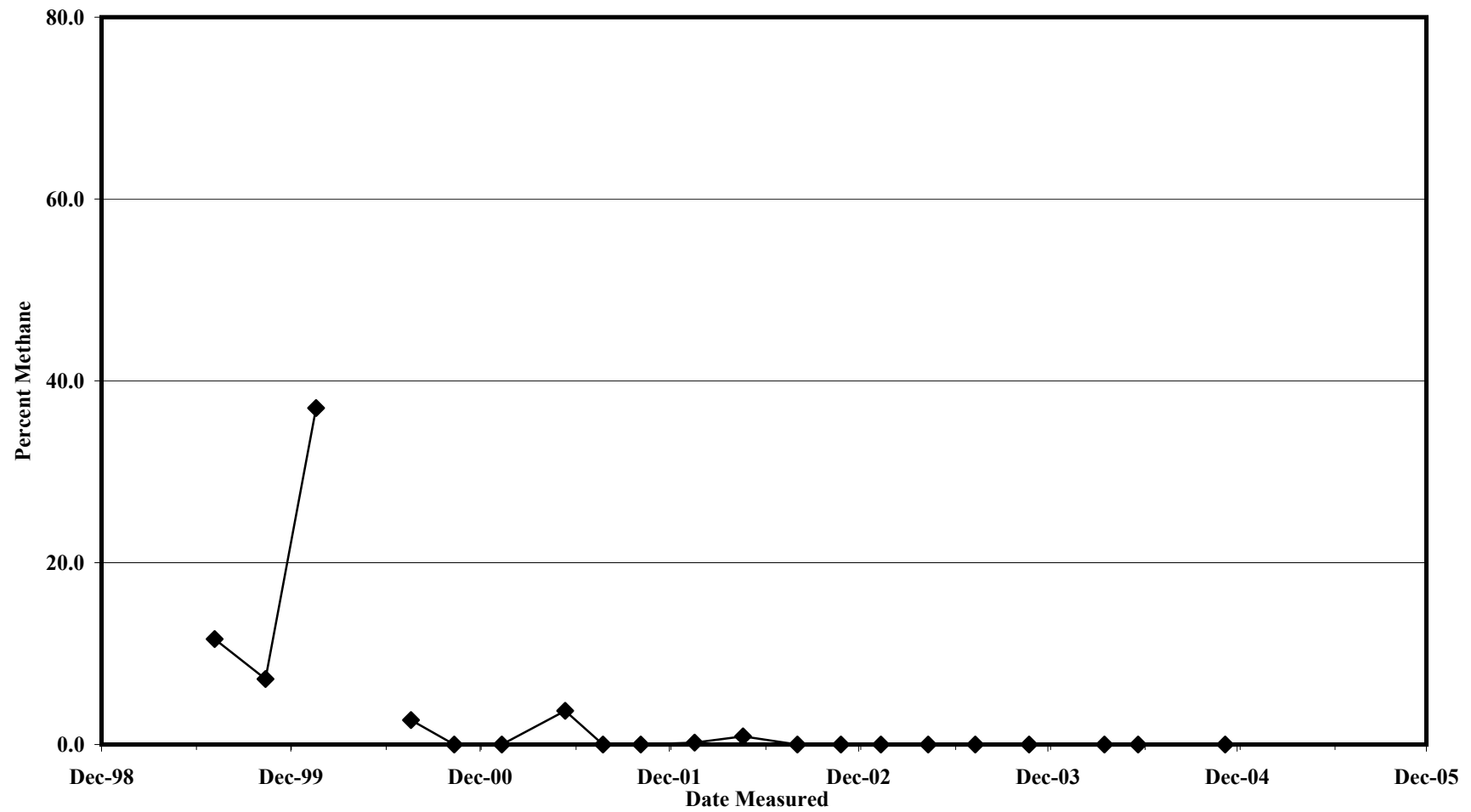
**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-13**





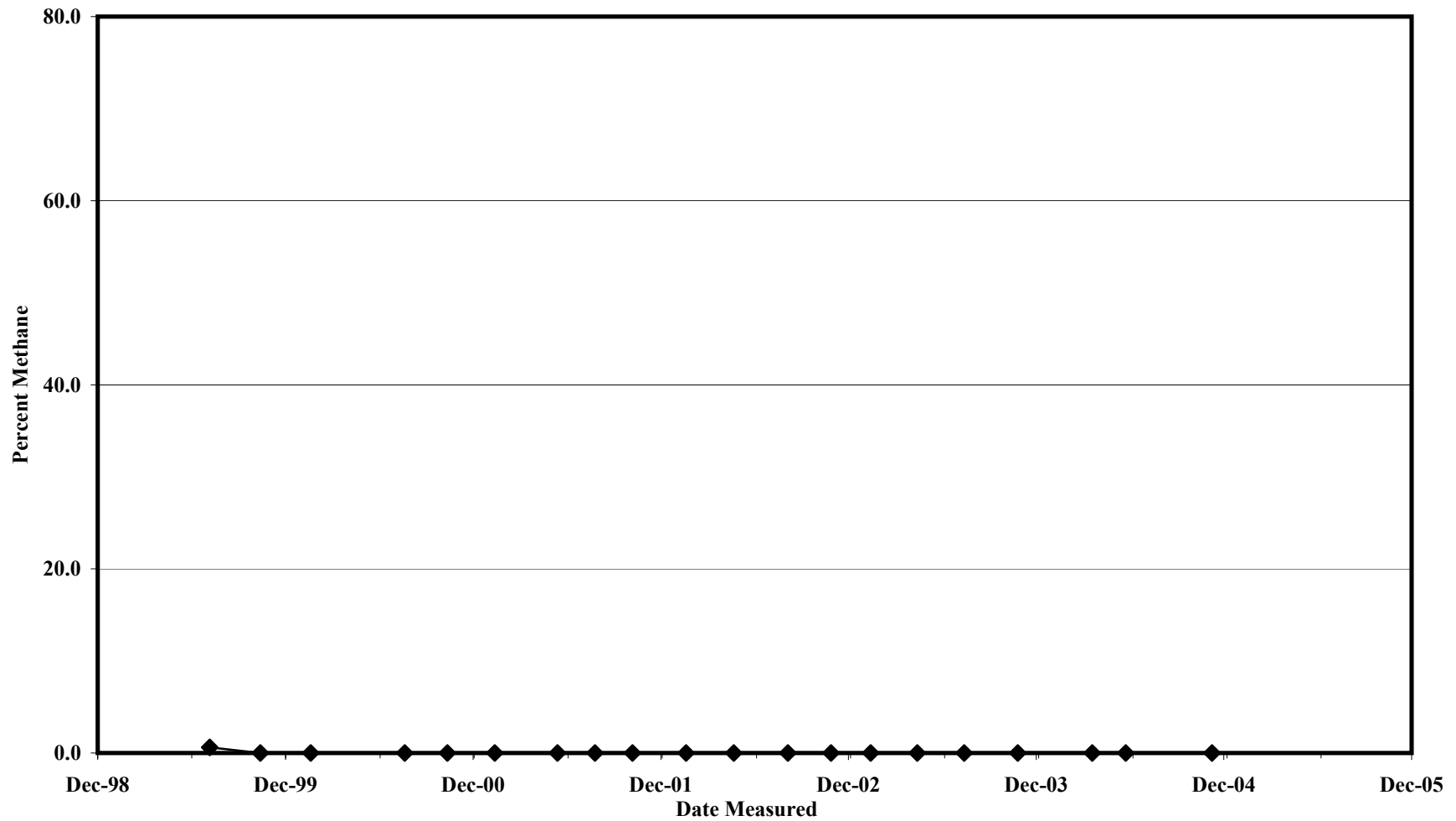
**FIGURE F-14**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-14**



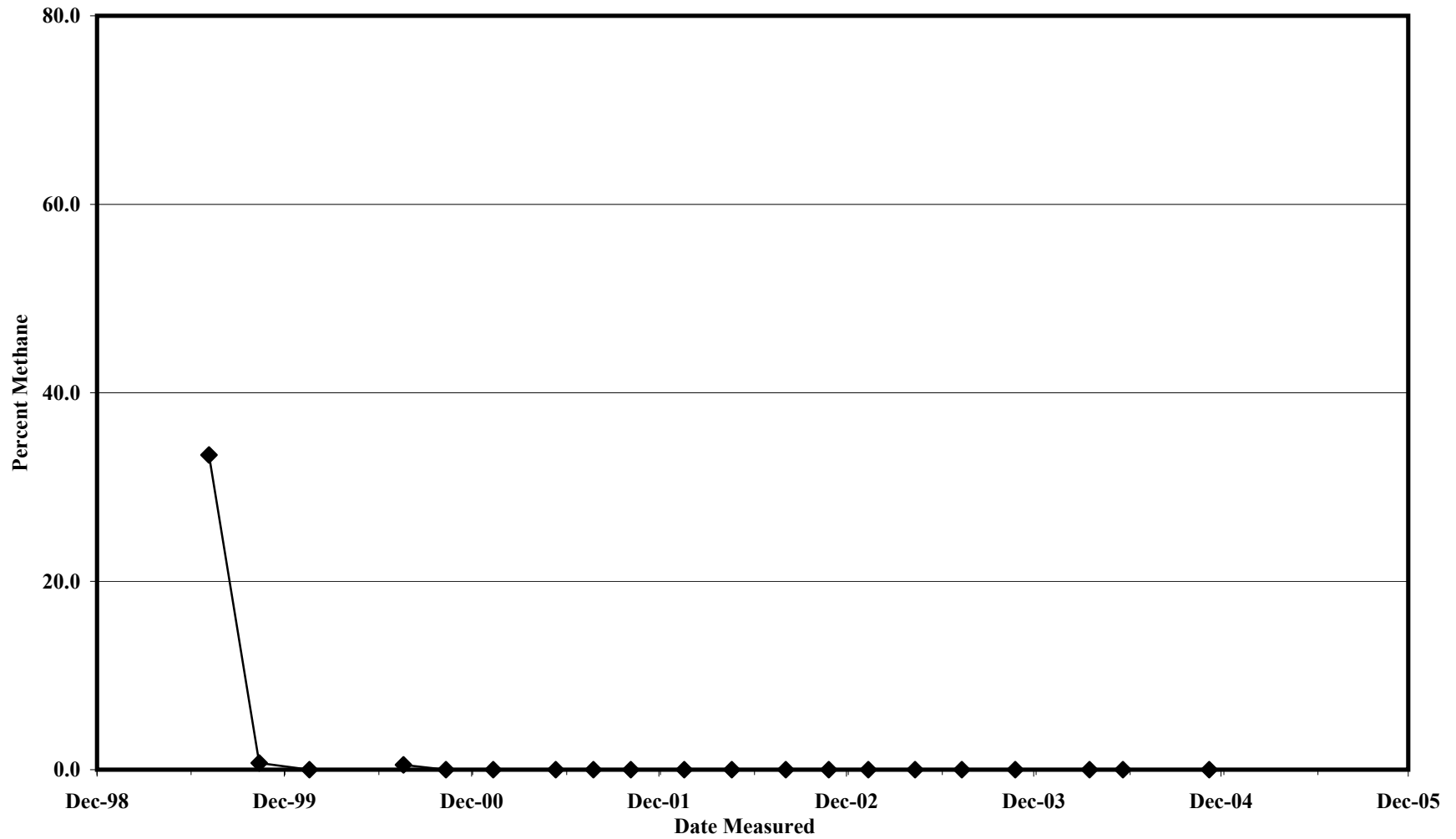
**FIGURE F-15**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-15**



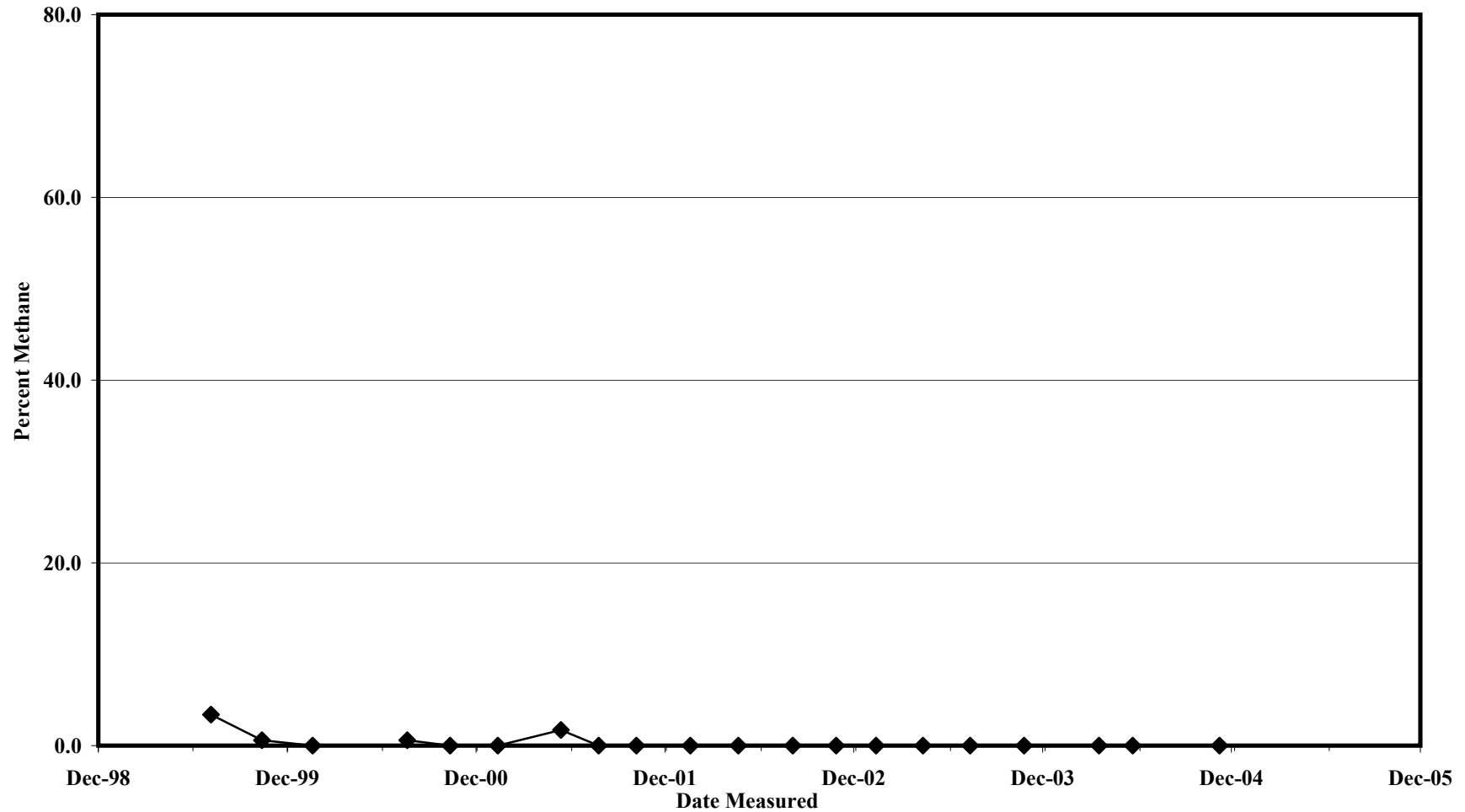
**FIGURE F-16**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-16**



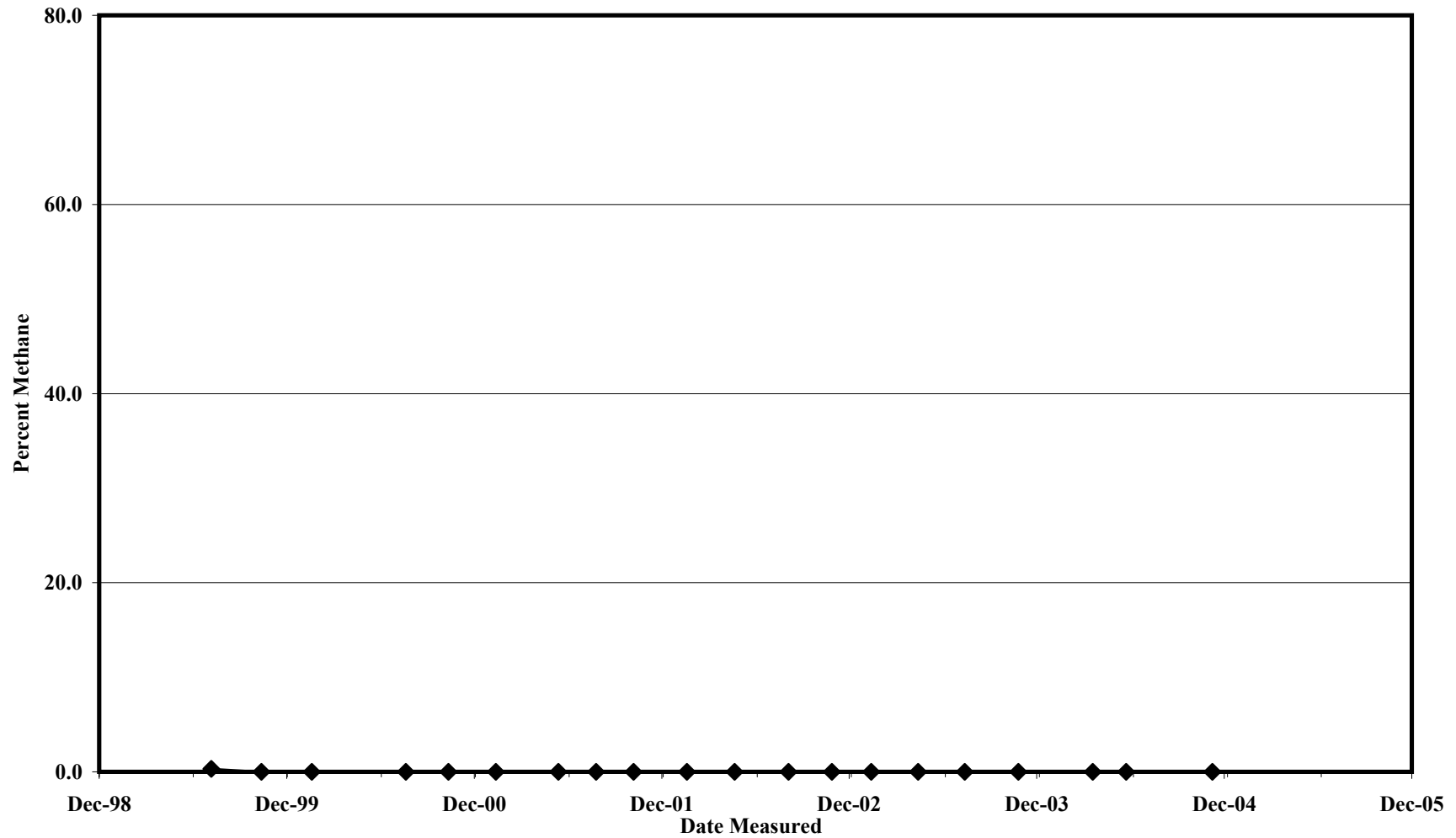
**FIGURE F-17**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-17**



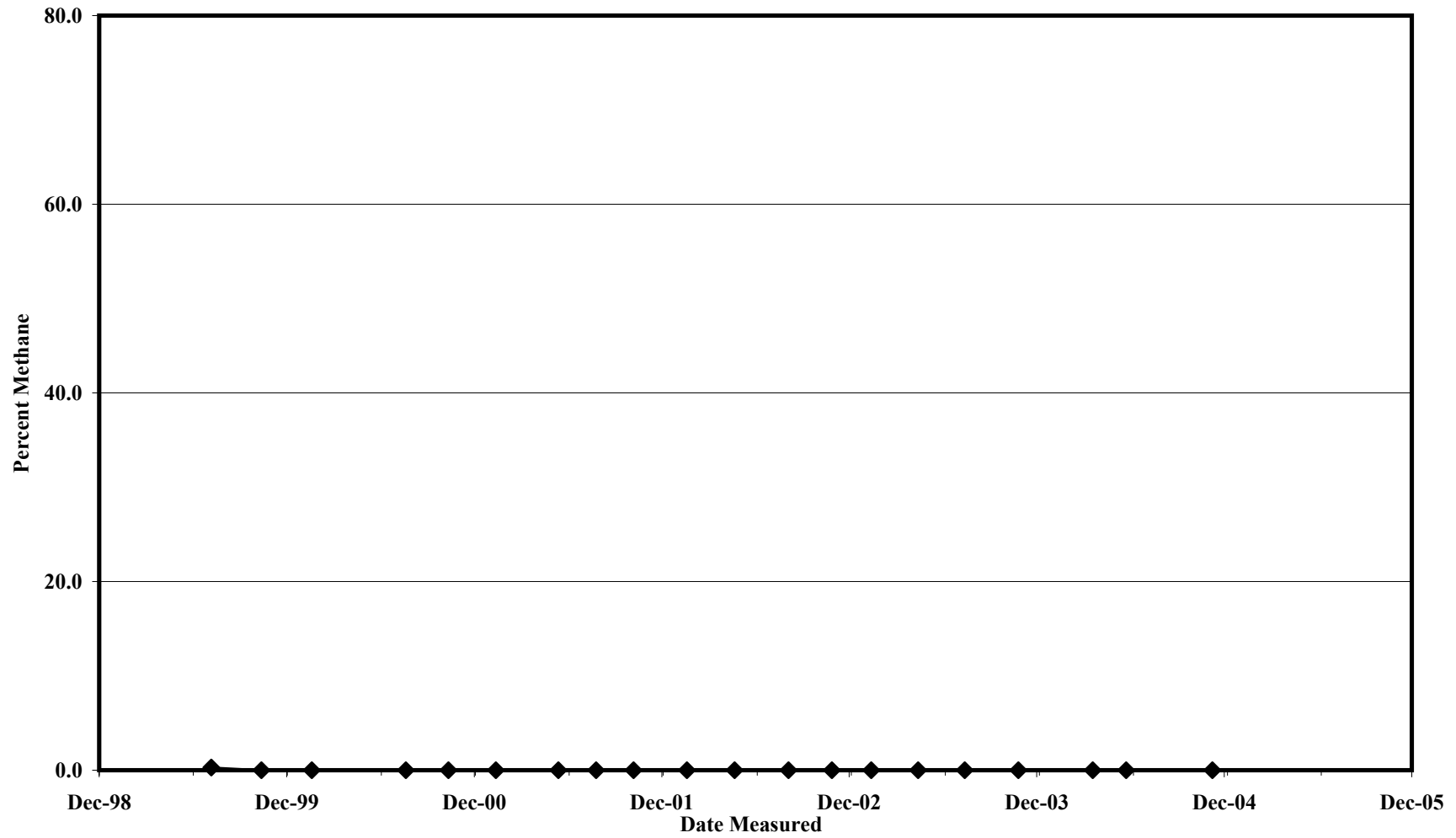
**FIGURE F-18**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-18**



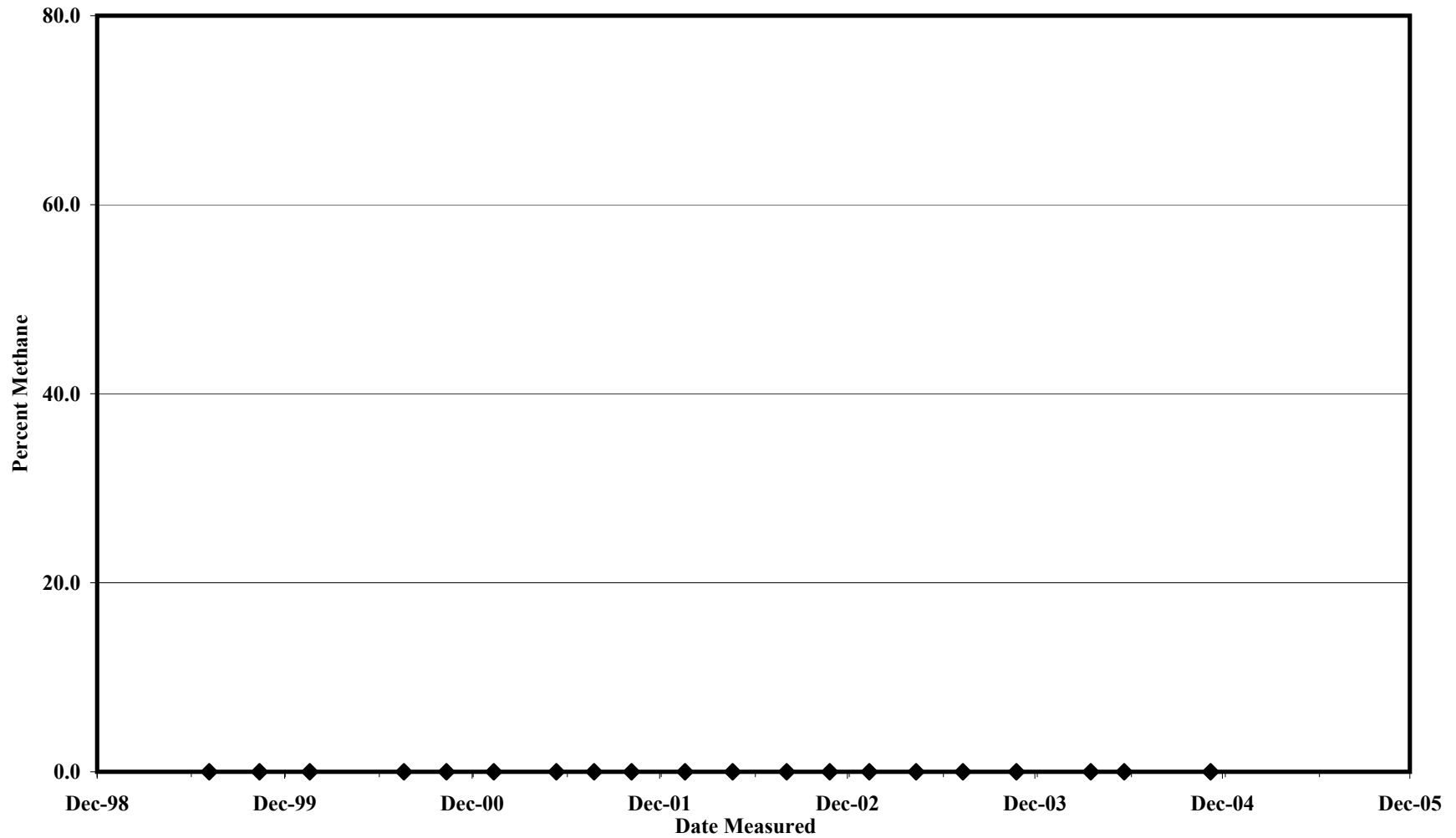
**FIGURE F-19**

**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-19**



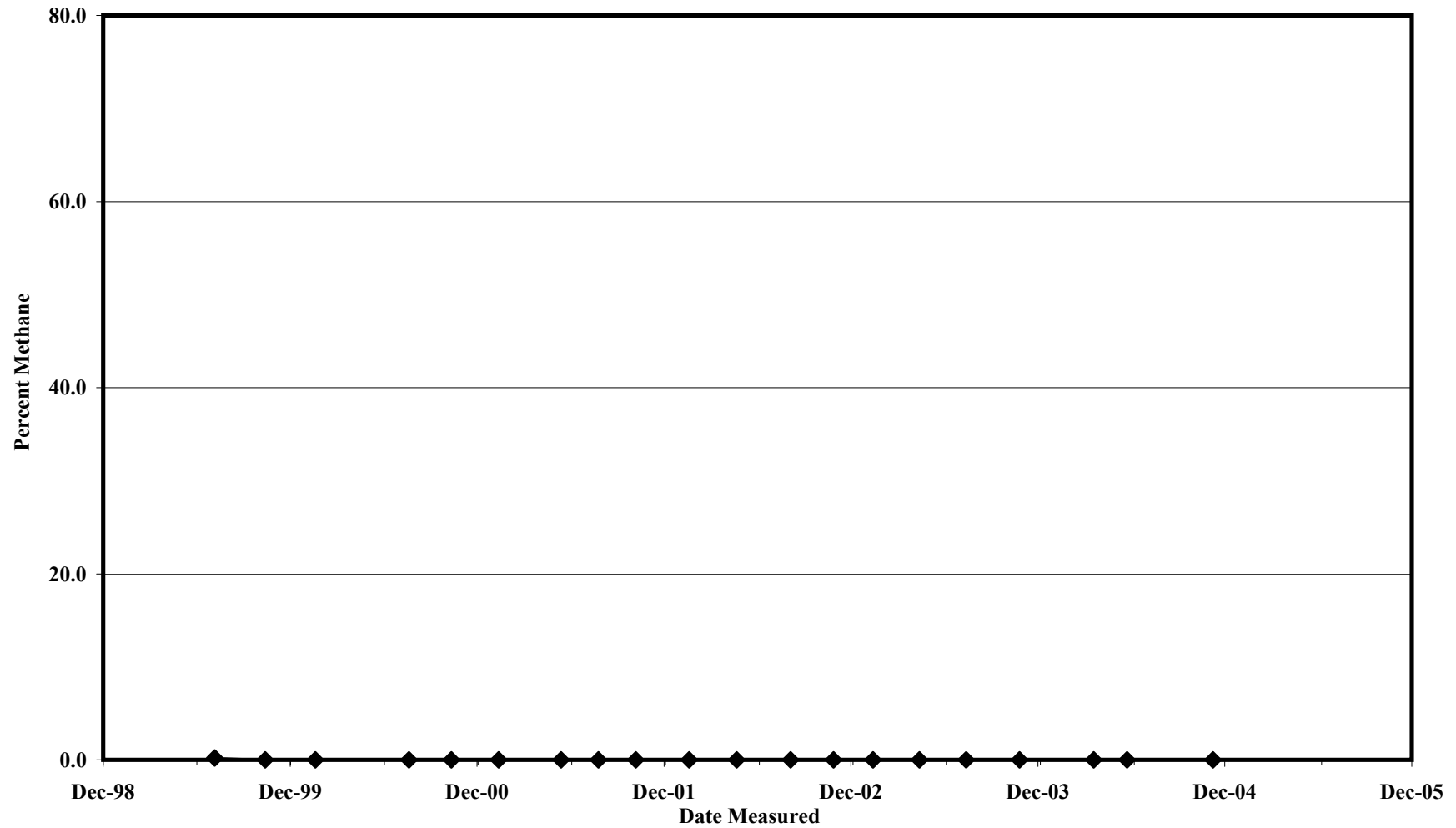
**FIGURE F-20**

**TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-1**



**FIGURE F-21**

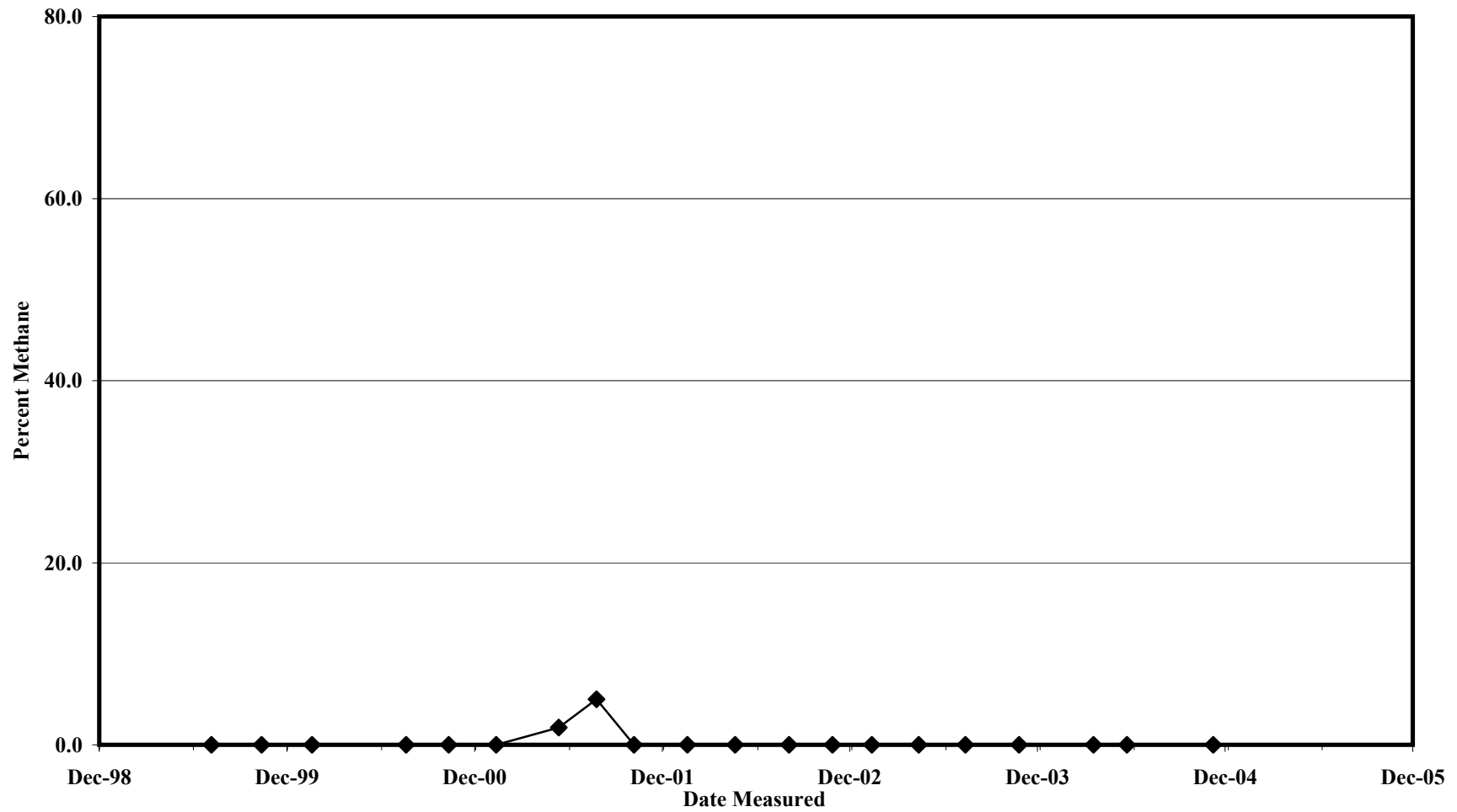
**TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-2**





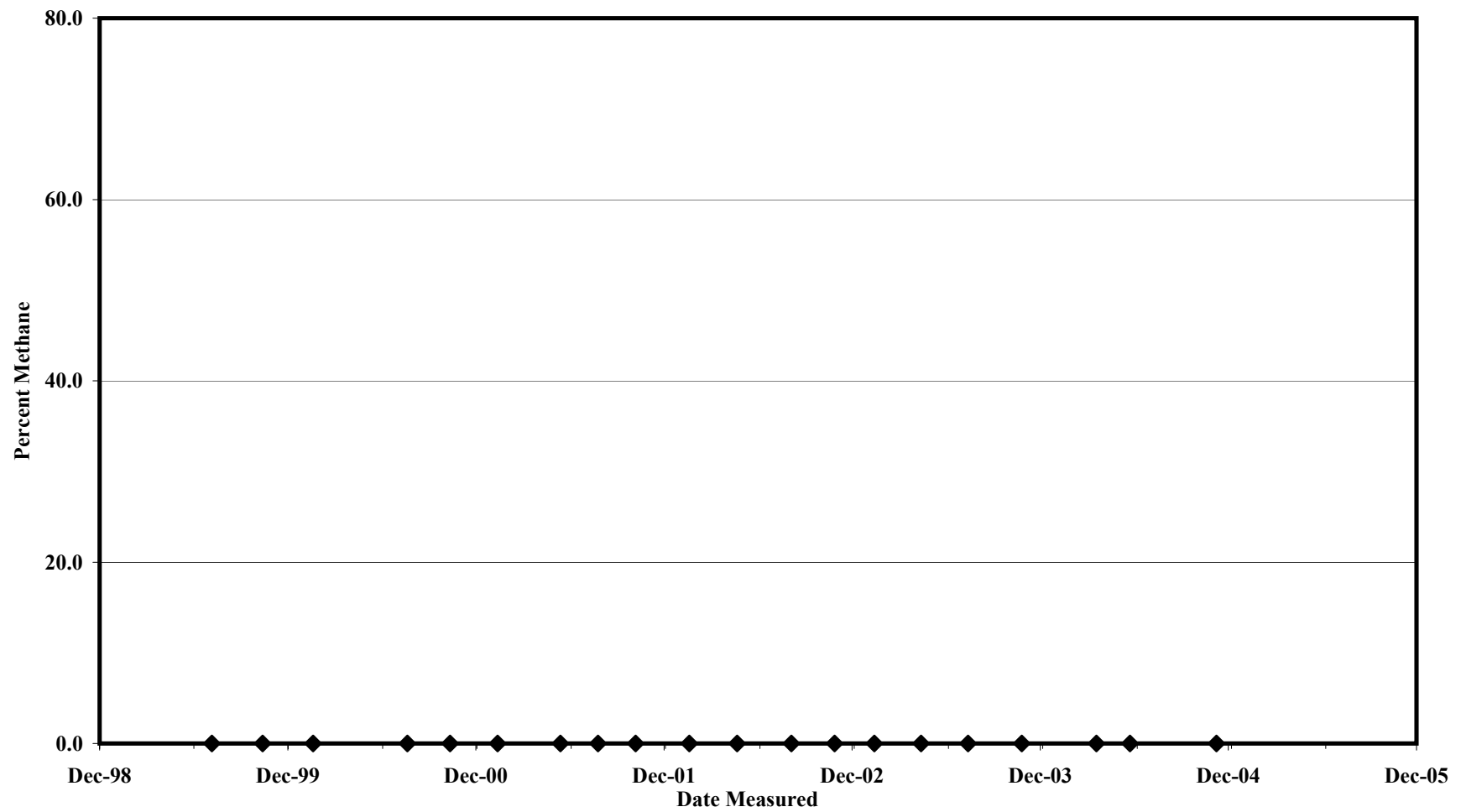
**FIGURE F-22**

**TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-3**



**FIGURE F-23**

**TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-4**



**APPENDIX G**

**MONITORING WELL W1-1R DOCUMENTATION**

# TETRA TECH FW, INC.

## LOG OF BORING W1-1R

(Sheet 1 of 1)

Client: US NAVY

Drilling Company: West Hazmat

Project: SITE 1 LANDFILL

Drilling Method: Hollow Stem Auger

Project Number: 1990.086E

Sampling Method: Split-Spoon

Location: FORMER NAS MOFFETT FIELD, CA

Borehole Diameter: 10 in. 0-25.5Ft.

Geologist: L. Dudus

Northing: (NAD83)

Date Started: August 13, 2004

Easting: (NAD83)

Date Completed: August 13, 2004

Ground Surface Elevation: AMSL (NAVD88)

Total Depth: 25.5 Feet bgs

Top of Casing Elevation: AMSL (NAVD88)

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
0			Concrete Surface Seal (0 - 1 ft. bgs)				GRAVELLY LEAN CLAY, dark olive gray (5Y 3/2), moist, 70% fines with medium plasticity, 20% fine subangular gravel, 10% medium to coarse subangular sand	
1.0			Type I-II Cement Grout (1.0 - 11.2 ft. bgs)		CL			
2.5			4-inch PVC well casing (2.5 ft ags to 14.3 ft. bgs)					
8.46			Static Water Level of 8.46 ft. was Measured on 8/16/04		CH		FAT CLAY, black (5Y 2.5/1), moist, 90% fines with high plasticity, 10% fine subrounded gravel, trace of fine to coarse sand, trace of roots	
11.2			2 ft. Hydrated Bentonite Seal (11.2 - 13.3 ft. bgs)		CL		GRAVELLY LEAN CLAY, dark olive gray to black (5Y 2.5/1 to 5Y 3/2), moist, 70% fines with medium plasticity, 20% fine angular to subrounded gravel, 10% fine to coarse sand, no roots	
13.3			#2/12 Sand Filter Pack (13.3 - 25.5 ft. bgs)		CL/ML		SILTY CLAY with SAND, olive brown (2.5Y 4/3), moist, 85% fines with low plasticity, 10% fine to coarse sand, 5% fine angular to subrounded gravel	
14.3			4-inch 0.010 Slot Wire-Wrap PVC Screen (14.3 - 24.3 ft. bgs)		ML/CL		CLAYEY SILT with SAND, olive brown (2.5Y 4/3), moist, 70% non-plastic fines, 20% fine to coarse sand, 10% fine angular to sub rounded gravel	
24.3			Silt Trap (24.3 - 24.7 ft. bgs)		SM		SILTY SAND, olive gray (5Y 5/2), wet, 60% fine sand, 40% non-plastic fines	
25.5							END OF BORING AT 25.5 FT.  W1-1R surface completion consists of a 5' x 10" round steel protective casing with an outer locking cap that extends approximately 2.9 ft. ags. The protective casing is set in a 2' x 2' concrete pad with four bollards surrounding it.	

Notes: Reviewed by D. Goldman on 10/19/2004  
bgs = below ground surface  
AMSL = above mean sea level  
NAD 83 = North American Datum 1983  
NAVD 88 = North American Vertical Datum 1988

GPS Coordinates - Lat: 37 24 52.091 N - Long: 122 03 18.007 W  
Boring log of EA2-3 was derived from a Cone Penetrometer Test (CPT) log

CTO-024-WELL CON W/O SS CTO 86 SITE 1.GPJ FSTRW SA.GDT 11/5/04

Permit No. 04W00577 Permit Date 8-11-04

Refer to Instruction Pamphlet

**No. e015981**

DWR USE ONLY — DO NOT FILL IN											
STATE WELL NO./STATION NO.											
LATITUDE						LONGITUDE					
APN/TRS/OTHER											

## GEOLOGIC LOG

WELL OWNER

[illegible]

Name U.S. NAVY  
 Mailing Address 1220 PACIFIC HIGHWAY  
SAN DIEGO CA 92132  
 CITY STATE ZIP  
 Address FORMER N45 MOFFETT FIELD  
 City MOFFETT FIELD  
 County SANTA CLARA  
 APN Book 116 Page 18 Parcel 008  
 Township 2S Range 2W Section 10  
 Latitude 37.25 46.9 NORTH Longitude 122.03.05 WEST  
 DEG MIN SEC DEG MIN SEC

### LOCATION SKETCH

A hand-drawn map of Site 1 Landfill. The landfill is an irregular shape with a double-line border. The word "SITE 1 LANDFILL" is written in the center. "NORTH" is written at the top, "SOUTH" at the bottom, and "WEST" on the left. "PERIMETER ROAD" is written at the top right, and "NORTH PERIMETER RD" is written along the bottom boundary. A "20'" dimension is indicated on the right side, and "WI-1A" is written near the bottom right corner.

- ACTIVITY ( $\leq$ )

☒ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify) \_\_\_\_\_

---

— DESTROY (*Describe Procedures and Materials Under "GEOLOGIC LOG"*)

**PLANNED USES ( ☒ )**

WATER SUPPLY

— Domestic — Public

— Irrigation — Industrial

MONITORING ☒

TEST WELL \_\_\_\_\_

CATHODIC PROTECTION \_\_\_\_\_

HEAT EXCHANGE \_\_\_\_\_

DIRECT PUSH \_\_\_\_\_

INJECTION \_\_\_\_\_

VAPOR EXTRACTION \_\_\_\_\_

SPARGING \_\_\_\_\_

REMEDIATION \_\_\_\_\_

OTHER (SPECIFY) \_\_\_\_\_

## WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 21 (FL) BELOW SURFACE  
DEPTH OF STATIC 8.46 TOC  
WATER LEVEL \_\_\_\_\_ (FL) & DATE MEASURED 8/16/04  
ESTIMATED YIELD NA (GPM) & TEST TYPE NA  
TEST LENGTH NA (Hrs.) TOTAL DRAWDOWN NA (FL)

\* May not be representative of a well's long-term yield.

TOTAL DEPTH OF BORING 25.5 (Feet)  
TOTAL DEPTH OF COMPLETED WELL 24.7 (Feet)

[illegible]

## ATTACHMENTS (✓)

- ☒ Geologic Log  
☒ Well Construction Diagram  
☐ Geophysical Log(s)  
☐ Soil/Water Chemical Analyses  
☐ Other \_\_\_\_\_

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

### CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME TETRA TECH FW, INC.  
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

1232 COLUMBIA ST., SUITE 500 SAN DIEGO CA. 92101

ADDRESS FOZ WEST HAZMAT CITY 10-8-04 STATE 819548 ZIP  
Signed WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



## WELL CONSTRUCTION COMPLETION NOTICE

FCE 158A (09-05-02)

Inspector: Thiemann		Date of Inspection: 8/13/04		Permit: 04W00577	
Well Owner: US Navy		Owner Well No: W1-1R		Well Registration No.: 06502W11C023	
Address of Well Site: N/O Patrol Rd E/O Zook Moffett Field				City or County: ( )	
Drilling Company: Test America		Consultant: Tetra Tech FW			
Cond. Bore:	Conductor Depth:	Conductor Diameter & Material:	TD: 25.5	Boring Diameter: 10"	BOC: 24.8
Casing Diameter & Material: 4" PVC	Slot Size: 010	Screen Interval(s): Wire Wrap PVC 24.8-14.3			
Filter Pack Material: 2/16	Filter Pack Interval(s): 25.5	Bent:		Seal Depth:	
Sealing Material: <input checked="" type="checkbox"/> Neat Cement <input type="checkbox"/> 10 Sack Sand Slurry <input type="checkbox"/> Bentonite Slurry <input type="checkbox"/> Other (See Comments)		Drilling Method: <input checked="" type="checkbox"/> HSA <input type="checkbox"/> Mud rotary <input type="checkbox"/> Other (See Comments) <input type="checkbox"/> Direct Push <input type="checkbox"/> Air Rotary			
Well Type: <input checked="" type="checkbox"/> GW Monitoring <input type="checkbox"/> GW Extraction <input type="checkbox"/> Vadose Monitoring <input type="checkbox"/> Vadose Extraction <input type="checkbox"/> Cathodic <input type="checkbox"/> Domestic <input type="checkbox"/> Agricultural <input type="checkbox"/> Municipal/Industrial <input type="checkbox"/> Elevator <input type="checkbox"/> Other (See Comments)					
Well constructed according to provisions of Santa Clara Valley Water District Permit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (See Comments)					
Well Location: 124 ft. N / S: NE/O N. Perimeter Rd ft. E / W:					
GPS Coordinates - Lat: 37 25 46.958 N			Long: 122 03 05.05 W		
Comments: 1496 feet NNW/O N Patrol Rd N Perimeter AKA Zook					
Distribution: ORIGINAL-Permit File; YELLOW-City/County; PINK-Well File; GOLDNENROD-Permittee					

# COAST SURVEYING, INC.

15031 PARKWAY LOOP, SUITE B, TUSTIN, CA 92780-6527 • (714) 918-6266 • FAX (714) 918-6277

## MOFFETT FEDERAL AIRFIELD MONITORING WELLS

Date Surveyed: November 17, 2004

Station ID	Northing	Easting	Elevation Measure Point	Elevation Steel Casing	Elevation Ground	Elevation Concrete Pad
W1-1R	1982659.55	6111220.30	7.52	7.91	4.9	5.28

**NOTE:** The measure point is an ink mark on the top, north side, of the 3" PVC well casing.

Coordinates are CCS NAD 83, Zone 3, U.S. Survey Feet.

Elevations are NAVD 88, U.S. Survey Feet.

Positions were determined using NASA Ames Research Center Control Monument ARC-32, a disc set flush in concrete, 6.5' north of northeast edge of pavement (Patrol Road) and 75' east of Perimeter Road, and 2.5' west of chain link fence.

Coordinates and elevations provided by Tetra Tech FW, Inc. for "NASA ARC-32" are:

Northing	Easting	Elevation
1981291.82	6111764.27	1.85

Prepared by me or under my direct supervision  
this 23rd day of November, 2004.



RUEL DEL CASTILLO, PLS 4212  
REGISTRATION EXPIRES 6/30/06





Date:

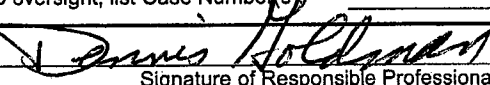
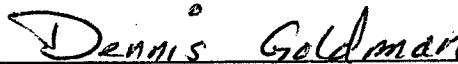
[illegible]



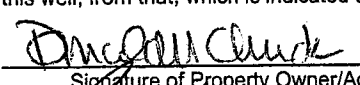
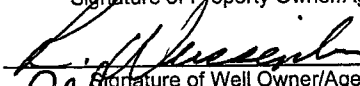
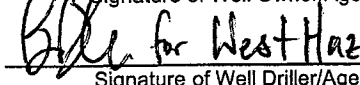
5750 Almaden Expressway, San Jose, CA 95118 (408) 265-2600

TO BE COMPLETED BY DISTRICT		
District Permit No.: <u>04W00577</u>	Date Issued: <u>8-11-04</u>	Well Registration No.:
Geologic Setting: <u>1</u>	Expiration Date: <u>2-11-05</u>	Driller's Log No.: <u>015981</u>

TO BE COMPLETED BY OWNER AND DRILLER		
Well Owner: <u>U.S. Navy</u>	Property Owner: <u>NASA</u>	Name of Business at Well Site: <u>Former NAS Moffett Field</u>
Well Owner's Mailing Address: <u>1220 Pacific Highway</u>	Property Owner's Mailing Address: <u>NASA MIS 218-1</u>	Address of Well Site: <u>Site 1 Landfill</u>
City, State, Zip: <u>San Diego, CA 92132-5190</u>	City, State, Zip: <u>Moffett Field, CA 94025</u>	City, State, Zip: <u>Moffett Field, CA 94035</u>
Telephone No. & Contact Name: <u>Rick Weissenborn 619-532-0952</u>	Telephone No. & Contact Name: <u>Don Chuck 650-604-0237</u>	Telephone No.:
Owner's/Consultant's Well No.: <u>W1-1R</u>		Assessor's Parcel Number of Well Site: Book: <u>116</u> Page: <u>18</u> Parcel: <u>008</u>
Consultant (Company): <u>TetraTech FW, Inc.</u>	Drilling Company: <u>West Hazmat</u>	
Address: <u>1230 Columbia Street, Suite 500</u>	Address: <u>1016 East Katella Avenue</u>	
City, State, Zip: <u>San Diego, CA 92101</u>	City, State, Zip: <u>Anaheim, CA 92805</u>	
Telephone No.: <u>619-471-3525</u>	Telephone No.: <u>714-939-6850</u>	C-57 License No.: <u>819548</u>
<input type="checkbox"/> Check if address or phone number has changed		<input type="checkbox"/> Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS	
CASE NAME: <u>Former NAS Moffett Field</u>	
Oversight Agency: <u>EPA/RWQCB</u>	If under S.C.V.W.D oversight, list Case Number(s):
Type of monitoring device: <input checked="" type="checkbox"/> Groundwater <input type="checkbox"/> Vadose	 Signature of Responsible Professional (No substitution of signature will be accepted)   Print Name <u>#4509</u> Registration No. Civil Engineer OR Registration No. Geologist
Type of extraction device: <input type="checkbox"/> Groundwater <input type="checkbox"/> Vadose	
Monitoring well use: <input type="checkbox"/> Depth <input checked="" type="checkbox"/> Quality <input type="checkbox"/> Chloride	
Nested Well: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Note: If Nested Well is proposed, a separate permit is needed for each casing.	

Estimated Depth of Completed Well: <input checked="" type="checkbox"/> Less than 50 ft. <input type="checkbox"/> 50 to 300 ft. <input type="checkbox"/> Over 300 ft. <input type="checkbox"/> Other: _____
Purpose of Well: <input type="checkbox"/> Domestic <input type="checkbox"/> Municipal/Industrial <input type="checkbox"/> Agricultural <input checked="" type="checkbox"/> Monitoring <input type="checkbox"/> Cathodic Protection <input type="checkbox"/> Other: _____
*Monitoring wells are those constructed for the purpose of obtaining repetitive water level measurements and/or repetitive air samples for analysis.
Well is to be Constructed: <input type="checkbox"/> In a public sidewalk <input type="checkbox"/> In a public road <input type="checkbox"/> On public property <input checked="" type="checkbox"/> On private property <input type="checkbox"/> On SCVWD property*
Within 50 ft. of the top of a creek* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 50 ft. of any existing well <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Within 50 ft. of sanitary sewer <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 150 ft. of a cesspool or seepage pit <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 100 ft. of a pit privy, septic tank, leachfield <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Other wells exist on this property? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
*See General Condition E, page 2.
Status: <input checked="" type="checkbox"/> Active <input type="checkbox"/> Inactive <input type="checkbox"/> Abandoned

CERTIFICATION BY WELL OWNER/AGENT AND DRILLER/AGENT		
I certify that the information given above is correct. I certify that the well will be constructed in compliance with the conditions of this permit (See Page 2), and Santa Clara Valley Water District Ordinance 90-1. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I understand that it is my responsibility as the well owner, to notify this District of any changes in the purpose of this well, from that, which is indicated on this application. NOTE: All applicable signatures must be present before permit will be processed.		
 Signature of Property Owner/Agent	<u>8/4/2004</u> Date	<u>DONALD M. CHUCK</u> Print Name of Property Owner/Agent
 Signature of Well Owner/Agent	<u>08/04/04</u> Date	<u>R. WEISSENBERG</u> Print Name of Well Owner/Agent
 Signature of Well Driller/Agent	<u>8-3-04</u> Date	<u>BRYCE BARTHELEMA</u> Print Name of Driller/Agent

IMPORTANT: A minimum 24-hour notice must be given to SCVWD Well Inspection Dept. prior to installing the annular seal.  
 Call (408) 265-2607 Ext. 2660. For weekends, holidays, or after hours call (408) 265-2607 Ext. 2120.

AUG 09 2004

**DISTRICT WELL PERMIT NO.:** 04W00577

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by Permittee and is also subject to the "General" and "Special" Conditions stated below.

**COUNTY OF SANTA CLARA DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL**

**Domestic Water Supply Wells Only** (Note: D. E. H. Approval must be granted before this application will be accepted by S.C.V.W.D.)

**Date:** \_\_\_\_\_ **Approved By:** \_\_\_\_\_, R.E.H.S.

**Approved As Submitted:** ☐ **Approved As Corrected:** ☐

**SITE PLAN**

**A SITE PLAN MUST BE ATTACHED TO THIS APPLICATION**

**THE SITE PLAN MUST BE SUBMITTED ON 8 1/2" X 11" PAPER**

**THE SITE PLAN MUST CONTAIN:**

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets

**GENERAL CONDITIONS**

- A. SCVWD (Telephone 408-265-2607, Ext. 2660) MUST BE NOTIFIED A MINIMUM OF ONE WORKING DAY BEFORE CONSTRUCTION OF THE ANNULAR SEAL. An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the Permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.
- B. This Permit is valid only for the purpose specified herein. Well construction methods authorized under this Permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g. if the District representative finds that site conditions warrant such a change).
- C. This Permit is only valid for the Assessor's Parcel Number indicated on it.
- D. This Permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.
- E. If any work associated with this permit will take place within 50 feet of the top of the banks of a stream, water course, or on SCVWD Property, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607 Ext. 2589).
- F. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California, Department of Water Resources, Office of Drinking Water).
- G. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24-hours of completion of testing activities. Destruction activities must be completed according to SCVWD standards. SCVWD must be notified a minimum of 24-hours prior to destruction.
- H. Within 60 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.
- I. The Permittee(s) shall assume entire responsibility for all activities and uses under this Permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from, the granting or exercise of this Permit including, but not limited to, property damage, personal injury, and wrongful death.
- J. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.
- K. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.
- L. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this Permit, will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.
- M. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.
- N. This Permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.
- O. This permit must be kept on-site during the completion of all activities associated with it and shall immediately be presented to an authorized District representative upon request.

**Special Conditions:**

Community Projects Review Unit Approval: (if needed)

CPRU Permit No.:

Approved By:

Date:

**PLEASE ALLOW 10 WORKING DAYS TO PROCESS THIS APPLICATION**

DRAWING NO:  
03298351.DWG

DCH: FWSD-RAC-03-2983  
CTO #048

APPROVED BY: DG

CHECKED BY: BB  
DATE: 09/19/03  
REV:

DRAWN BY: KLD

I:\1990-RAC\CTO-0048\032983\03298351.DWG  
PLOT/UPDATE: SEP 12 2003 14:00:21

EVAPORATION POND

EVAPORATION POND

FORMER JAGEL SLOUGH

SITE 1

PERIMETER  
ROAD

STORMWATER RETENTION  
POND

HEAVED AREA  
BOUNDARY

NORTH PERIMETER RD

### LEGEND

- ⊕ W1-16 MONITORING WELL
- △ PZ1-21 PIEZOMETER
- ⊕ W1-22 COLLECTION TRENCH WELL
- WATER BODY
- ▨ RIPRAP
- - - SITE SECURITY FENCE
- ⌂ GATE
- PAVED ROAD
- - - UNSURFACED ROAD
- - - GAS VENTING TRENCH
- - - GROUNDWATER COLLECTION TRENCH
- ⌂ HEAVED AREA BOUNDARY



75' 0 75' 150'  
SCALE: 1" = 150'

NAVAL FACILITIES ENGINEERING COMMAND  
SOUTHWEST DIVISION  
SAN DIEGO, CA

FIGURE 5-1  
WELL AND PIEZOMETER LOCATIONS AT  
SITE 1 LANDFILL

FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA

FOSTER WHEELER  
ENVIRONMENTAL CORPORATION

## **APPENDIX H**

### **2004 SANTA CLARA COUNTY LANDFILL INSPECTION REPORTS AND GENERAL SITE INSPECTION REPORTS**

## **2004 SANTA CLARA COUNTY LANDFILL INSPECTION REPORTS**

## Closed Site Inspection Report

Enforcement Agency:

Santa Clara County Department of Environmental Health - LEA

Page 1 of 1

FACILITY FILE NUMBER <b>43-AA-0005</b>	PROGRAM CODE LOCAL = L STATE = S <b>L</b>	INSPECTION DATE MM DD YY <b>2/18/2004</b>	TIME IN <b>10:00 AM</b>	INSPECTION TIME <b>2 hours</b>
FACILITY NAME <b>NASA / MOFFETT FIELD - Sites 1 &amp; 22 Closed Landfills</b>			RECEIVED BY (OPERATOR) <i>Randy Munelung</i> , ROICC SFOA	
FACILITY LOCATION <b>Moffett Blvd., Mt. View, CA</b>			OWNER <b>United States Government</b>	
INSPECTOR <b>Chris Rummel, R.E.H.S.</b>	INSPECTOR SIGNATURE <i>Chris Rummel</i>		ALSO PRESENT <i>Mary Parker &amp; Wilson Doctor - NAVFAC</i>	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF THE PUBLIC RESOURCES CODE (PRC) and TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

## SITES NOT SUBJECT TO ARTICLE 2 STANDARDS

	V	A	NA
20530 - SITE SECURITY			
20650 - GRADING OF FILL SURFACES			
20750 - SITE MAINTENANCE			
20790 - LEACHATE CONTROL			
20820 - DRAINAGE / EROSION CONTROL			
20830 - LITTER CONTROL			
20919 - GAS CONTROL			
21190(c) - POSTCLOSURE LAND USE			
OTHER			

## COMMENTS (USE SWIS-43 FOR ADDITIONAL SPACE)

Weather: cool, windy, no rain

**SITE 1:** Site inspection revealed no problem areas. Site looked excellent. Several wells were monitored and gas levels were consistent with recent monitoring results from Third Quarter Monitoring Rept.

**SITE 22:** No deficiencies to report. Inspected gas wells & sampled around trees. No detection of gas. Gas wells were full of water. Purging is needed before sampling.

**DOCUMENTS RECEIVED SINCE LAST INSPECTION 11/22/03<sup>3</sup>**

(1) Final- Third quarter 2003 - Monitoring and Maintenance Report for Site 1, Rev. 0, Dec. 16, 2003

(2) Draft - Remedial Action Report for Installation Restoration Site 22 Landfill, Rev. 0, Dec. 23, 2003

SPACE FOR ADDITIONAL COMMENTS, DIAGRAMS, OR NOTES.

DISTRIBUTION:

TOP - CIWMB

MIDDLE - EA

BOTTOM - OPERATOR

# Closed Site Inspection Report

Enforcement Agency: Santa Clara County Dept. of Environmental Health

Page 1 of 1

FACILITY FILE NUMBER <b>43-AA-0005</b>	PROGRAM CODE LOCAL = L STATE = S <b>L</b>	INSPECTION DATE MM DD YY <b>05-19-04</b>	TIME IN <b>10:00</b>	INSPECTION TIME
			TIME OUT <b>12:15</b>	
FACILITY NAME <b>NASA/MOFFETT FIELD-Sites 1&amp;22</b>			RECEIVED BY (OPERATOR) <b>Ray J. Munkhanna</b>	
FACILITY LOCATION <b>Moffett Field, CAL.</b>			OWNER <b>U.S. Government</b>	
INSPECTOR <b>Chris Rummel, REHS</b>	INSPECTOR SIGNATURE <i>Chris Rummel</i>		ALSO PRESENT	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF THE PUBLIC RESOURCES CODE (PRC) and TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

SITES NOT SUBJECT TO ARTICLE 2 STANDARDS				
	V	A	NA	
20530 - SITE SECURITY				
20650 - GRADING OF FILL SURFACES				
20750 - SITE MAINTENANCE				
20790 - LEACHATE CONTROL				
20820 - DRAINAGE / EROSION CONTROL				
20830 - LITTER CONTROL				
20919 - GAS CONTROL				
21190(c) - POSTCLOSURE LAND USE				
OTHER				

COMMENTS (USE SWIS-03 FOR ADDITIONAL SPACE)

**SITE 1:** No problem areas to report. Recent maintenance work on concrete collars around landfill gas vents was noted.

**SITE 22:** Along North Patrol Road woven plastic sand bags are torn and breaking down releasing plastic litter. Bags are placed at transition between turf side slopes and slurry-lined drainage ditch. Inquiry was made regarding future plans or need for this line of deteriorating sand bags.

Documents received in last quarter:

① Final-4<sup>TH</sup> Quarter 2003 Monitoring and Maintenance Rept- Site 1, Mar. 12, 2004

② Final-Tech. Memorandum Site 1 Groundwater Evaluation Process, April 8, 2004

SPACE FOR ADDITIONAL COMMENTS, DIAGRAMS, OR NOTES.

# Closed Disposal Site Inspection Report

Enforcement Agency: Santa Clara County, Department of Environmental Health - Local Enforcement Agency

Page 1 of 1

FACILITY FILE NUMBER/UNIT	PROGRAM CODE LOCAL = L	INSPECTION DATE MM DD YY	TIME IN	INSPECTION TIME
43-AA-0005	LOCAL = L	8/18/04	10:40	
FACILITY NAME			TIME OUT	
NASA/MOFFETT FIELD - Sites 1 & 22 Landfills			12:20	
FACILITY LOCATION			RECEIVED BY (OPERATOR)	
Moffett Field, CA			OWNER	
INSPECTOR			ALSO PRESENT	
Chris Rummel, R.E.H.S.			INSPECTOR SIGNATURE	
			United States Government	
			Dave Smith, Bill Ogle	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 27 CALIFORNIA CODE OF REGULATION (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

POSTCLOSURE	V	A	NA
20750 - SITE MAINTENANCE			
21180 - POSTCLOSURE MAINTENANCE			
21190 - POSTCLOSURE LAND USE			
GAS MONITORING AND CONTROL SYSTEMS			
20918 - EXEMPTIONS			
20919 - GAS CONTROLS			
20919.5 - EXPLOSIVE GAS CONTROL			
20921 - GAS MONITORING/CONTROL			
20923 - MONITORING			
20925 - PERIMETER MONITORING NETWORK			X
20931 - STRUCTURE MONITORING			
20932 - MONITORED PARAMETERS			
20933 - MONITORING FREQUENCY			
20934 - REPORTING			
20937 - CONTROL			
GRADING/FINAL COVER			
20650 - GRADING OF FILL SURFACES			
21140 - FINAL COVER			
21142 - FINAL GRADING			
21145 - SLOPE STABILITY			

DRAINAGE AND EROSION CONTROL	V	A	NA
20820 - DRAINAGE/EROSION CONTROL			
21150 - DRAINAGE/EROSION CONTROL			
MONITORING AND CONTROL SYSTEMS			
20790 - LEACHATE CONTROL			
20830 - LITTER CONTROL			
21160 - LF GAS CONTROL/LEACHATE CONTACT			
SECURITY			
20530 - SITE SECURITY			
21135 - SECURITY AT CLOSED SITES			
21137 - STRUCTURE REMOVAL			
RECORDS			
21130 - EMERGENCY RESPONSE PLAN			
21170 - RECORDING			
21200 - CHANGE OF OWNERSHIP			
CLOSURE PLANS			
21880 - CERTIFICATION OF CLOSURE			
21890 - REVISION OF APPROVED PLANS FOR C/PC MAINT			
OTHER			

COMMENTS (USE CIWMB 3 FOR ADDITIONAL SPACE)

SITE 1: Site inspection revealed no problem areas. Site looked excellent.
SITE 22: No deficiencies to report, as for site cover and final surface features. Eroding bags of sand/aggregate have been removed.
Area of Concern 27 CCR 20925: Perimeter gas monitoring wells need to be fitted with a valved petcock fitting to allow proper sampling of first-drawn gas, without the dilution from open air when locked cap is removed.
DOCUMENTS RECEIVED SINCE LAST INSPECTION 5/18/04:
(1) Draft Site 1 Landfill Post Closure Long-Term Monitoring Plan - Revision 0, June 16, 2004.



## Closed Disposal Site Inspection Report

Enforcement Agency: Santa Clara County, Department of Environmental Health - Local Enforcement Agency

Page 1 of 1

FACILITY FILE NUMBER/UNIT#	PROGRAM CODE LOCAL = L STATE = S	INSPECTION DATE MM DD YY	TIME IN	INSPECTION TIME
43-AA-0005	LOCAL = L	11/17/04	10:30 TIME OUT 12:00	
FACILITY NAME	NASA/MOFFETT FIELD - Sites 1 & 22 Landfills			RECEIVED BY (OPERATOR) Day / Munkhwa
FACILITY LOCATION	Moffett Field, CA			OWNER United States Government
INSPECTOR Chris Rummel, R.E.H.S.	INSPECTOR SIGNATURE Chris Rummel			ALSO PRESENT David Smith, Bill Ogle

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 27 CALIFORNIA CODE OF REGULATION (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

POSTCLOSURE	V	A	NA
20750 - SITE MAINTENANCE			
21180 - POSTCLOSURE MAINTENANCE			
21190 - POSTCLOSURE LAND USE			
GAS MONITORING AND CONTROL SYSTEMS			
20918 - EXEMPTIONS			
20919 - GAS CONTROLS			
20919.5 - EXPLOSIVE GAS CONTROL			
20921 - GAS MONITORING/CONTROL			
20923 - MONITORING			
20925 - PERIMETER MONITORING NETWORK		OK	
20931 - STRUCTURE MONITORING			
20932 - MONITORED PARAMETERS			
20933 - MONITORING FREQUENCY			
20934 - REPORTING			
20937 - CONTROL			
GRADING/FINAL COVER			
20650 - GRADING OF FILL SURFACES			
21140 - FINAL COVER			
21142 - FINAL GRADING			
21145 - SLOPE STABILITY			

DRAINAGE AND EROSION CONTROL	V	A	NA
20820 - DRAINAGE/EROSION CONTROL			
21150 - DRAINAGE/EROSION CONTROL			
MONITORING AND CONTROL SYSTEMS			
20790 - LEACHATE CONTROL			
20830 - LITTER CONTROL			
21160 - LF GAS CONTROL/LEACHATE CONTACT			
SECURITY			
20530 - SITE SECURITY			
21135 - SECURITY AT CLOSED SITES			
21137 - STRUCTURE REMOVAL			
RECORDS			
21130 - EMERGENCY RESPONSE PLAN			
21170 - RECORDING			
21200 - CHANGE OF OWNERSHIP			
CLOSURE PLANS			
21880 - CERTIFICATION OF CLOSURE			
21890 - REVISION OF APPROVED PLANS FOR C/P C MAINT			
OTHER			

COMMENTS (USE CIWMB 3 FOR ADDITIONAL SPACE)

SITE 1: Site inspection revealed no problem areas. Site looked excellent.

SITE 22: No deficiencies to report.

Corrected Area of concern: All gas monitoring wells have sample tubes with valves for first-draw sampling.

DOCUMENTS RECEIVED SINCE LAST INSPECTION 8/18/04:


None

## **2004 GENERAL SITE INSPECTION REPORTS**

**TABLE 1-3**  
**SITE 1 LANDFILL**  
**GENERAL INSPECTION LIST**

Inspection Date: January 19, 2004 Inspector: Bill Ogle

Site	Item	Condition			Comments
		Good	Needs Maintenance	N/A	
1	<b>General Site</b>				
	- access roads	X			
	- warning/instruction signs	X			
	- litter	X			
	- traffic protection (check bollards)	X			
	- inspect for nesting owls	X			
	- heaved areas	X			
	- paint condition (vents, well, bollards)	X			
	- security fencing/gates	X			
	- check integrity of fence flashing	X			
	<b>Landfill Cap</b>				
	- erosion	X			
	- settling	X			
	- settlement markers	X			
	- cracking	X			
	- rodent burrows	X			No activity
	- vegetation restoration	X			Excellent growth
	- deep rooted vegetation	X			
	- breaching of cap (from roots, burrows)	X			None seen
	- water drainage	X			Good
	- rip rap	X			
	- paint and maintain bird perches	X			
	<b>Landfill Gas Vents</b>				
	- riser condition	X			
	- concrete collar condition	X			
	- screen condition	X			
	<b>Landfill Gas Monitoring Wells</b>				
	- well cap integrity	X			
	- water drainage	X			
	- traffic protection	X			
	- concrete collar condition	X			
	- screen condition	X			
	- locks	X			
	<b>Gas Venting Trench</b>				
	- riser integrity	X			
	<b>Groundwater Extraction Trench Wells</b>				
	- vault integrity	X			
	- water drainage	X			

Site	Item	Condition			Comments
		Good	Needs Maintenance	N/A	
	- locks	X			
	<b>Groundwater Monitoring Wells</b>				
	- well cap integrity	X			
	- water drainage	X			
	- locks	X			
	<b>Groundwater Piezometers</b>				
	- well cap integrity	X			
	- water drainage	X			
	- locks	X			
	<b>Stormwater Runoff Control</b>				
	- water drainage	X			
	- culvert/trench drainage	X			
	- culvert screen condition				Present ___ Absent _X
	- rip rap	X			
	- settlement	X			
	- erosion	X			
	<b>Additional Comments:</b>				
	Painted bollards and well vault				
					

**Notes:**


N/A = Not Applicable

**TABLE 1-3**  
**SITE 1 LANDFILL**  
**GENERAL INSPECTION LIST**

Inspection Date: February 18, 2004

Inspector: Bill Ogle

Site	Item	Condition			Comments
		Good	Needs Maintenance	N/A	
1	<b>General Site</b>				
	- access roads	X			
	- warning/instruction signs	X			
	- litter	X			
	- traffic protection (check bollards)	X			
	- inspect for nesting owls	X			
	- heaved areas	X			
	- paint condition (vents, well, bollards)	X			
	- security fencing/gates	X			
	- check integrity of fence flashing	X			
	<b>Landfill Cap</b>				
	- erosion	X			
	- settling	X			
	- settlement markers	X			
	- cracking	X			
	- rodent burrows	X			No activity
	- vegetation restoration	X			Excellent growth
	- deep rooted vegetation	X			
	- breaching of cap (from roots, burrows)	X			
	- water drainage	X	Cleanup at the culverts		Good
	- rip rap	X			
	- paint and maintain bird perches	X			
	<b>Landfill Gas Vents</b>				
	- riser condition	X			
	- concrete collar condition	X			
	- screen condition	X			
	<b>Landfill Gas Monitoring Wells</b>				
	- well cap integrity	X			
	- water drainage	X			
	- traffic protection	X			
	- concrete collar condition	X			
	- screen condition	X			
	- locks	X			
	<b>Gas Venting Trench</b>				
	- riser integrity	X			
	<b>Groundwater Extraction Trench Wells</b>				
	- vault integrity	X			
	- water drainage	X			

Site	Item	Condition			Comments
		Good	Needs Maintenance	N/A	
	- locks	X			
	<b>Groundwater Monitoring Wells</b>				
	- well cap integrity	X			
	- water drainage	X			
	- locks	X			
	<b>Groundwater Piezometers</b>				
	- well cap integrity	X			
	- water drainage	X			
	- locks	X			
	<b>Stormwater Runoff Control</b>				
	- water drainage	X			
	- culvert/trench drainage	X			
	- culvert screen condition				Present ___ Absent <u>X</u>
	- rip rap	X			
	- settlement	X			
	- erosion	X			
	<b>Additional Comments:</b>				
	1. Add seed at rolloff laydown area.				
					

**Notes:**


N/A = Not Applicable

**TABLE 1-3**  
**SITE 1 LANDFILL**  
**GENERAL INSPECTION LIST**

Inspection Date: May 18, 2004

Inspector: \_\_\_\_\_ Bill Ogle \_\_\_\_\_

Site	Item	Condition			Comments
		Good	Needs Maintenance	N/A	
1	General Site				
	- access roads	X			Cut weeds along berm
	- warning/instruction signs	X			
	- litter	X			
	- traffic protection (check bollards)	X			
	- inspect for nesting owls	X			Owl seen at Site 2
	- heaved areas	X			
	- paint condition (vents, well, bollards)	X			
	- security fencing/gates	X			
	- check integrity of fence flashing	X			
	Landfill Cap				
	- erosion	X			
	- settling	X			
	- settlement markers	X			
	- cracking	X			
	- rodent burrows	X			One burrow in 3 months
	- vegetation restoration	X			Excellent growth
	- deep rooted vegetation	X			
	- breaching of cap (from roots, burrows)	X			
	- water drainage	X			
	- rip rap	X			
	- paint and maintain bird perches	X			
	Landfill Gas Vents				
	- riser condition	X			
	- concrete collar condition	X			Two repaired
	- screen condition	X			
	Landfill Gas Monitoring Wells				
	- well cap integrity	X			
	- water drainage	X			
	- traffic protection	X			
	- concrete collar condition	X			
	- screen condition	X			
	- locks	X			
	Gas Venting Trench				
	- riser integrity	X			
	Groundwater Extraction Trench Wells				
	- vault integrity	X			
	- water drainage	X			

Site	Item	Condition			Comments
		Good	Needs Maintenance	N/A	
	- locks	X			
	<b>Groundwater Monitoring Wells</b>				
	- well cap integrity	X			
	- water drainage	X			
	- locks	X			
	<b>Groundwater Piezometers</b>				
	- well cap integrity	X			
	- water drainage	X			
	- locks	X			
	<b>Stormwater Runoff Control</b>				
	- water drainage	X			
	- culvert/trench drainage	X			
	- culvert screen condition				Present ____ Absent _X
	- rip rap	X			
	- settlement	X			
	- erosion	X			
	<b>Additional Comments:</b>				
					

**Notes:**

N/A = Not Applicable



**TABLE 1-3**  
**SITE 1 LANDFILL**  
**GENERAL INSPECTION LIST**

Inspection Date: August 17, 2004Inspector: Bill Ogle

Site	Item	Condition			Comments
		Good	Needs Maintenance	N/A	
1	General Site				
	- access roads	X			
	- warning/instruction signs	X			
	- litter	X			
	- traffic protection (check bollards)	X			
	- inspect for nesting owls	X			
	- heaved areas	X			
	- paint condition (vents, well, bollards)	X			In progress
	- security fencing/gates	X			
	- check integrity of fence flashing	X			
	Landfill Cap				
	- erosion	X			
	- settling	X			
	- settlement markers	X			
	- cracking	X			
	- rodent burrows	X			Three found in one month
	- vegetation restoration	X			
	- deep rooted vegetation	X			None found
	- breaching of cap (from roots, burrows)	X			
	- water drainage	X			
	- rip rap	X			
	- paint and maintain bird perches	X			In progress
	Landfill Gas Vents				
	- riser condition	X			
	- concrete collar condition	X			Repaired all
	- screen condition	X			
	Landfill Gas Monitoring Wells				
	- well cap integrity	X			
	- water drainage	X			
	- traffic protection	X			
	- concrete collar condition	X			
	- screen condition	X			
	- locks	X			
	Gas Venting Trench				
	- riser integrity	X			
	Groundwater Extraction Trench Wells				
	- vault integrity	X			
	- water drainage	X			



TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency	Condition			Comments
		Good	Needs Maintenance	N/A	
General Site Conditions					
- Perimeter Road	Quarterly <sup>a</sup>	✓			
- landfill signs	Quarterly <sup>a</sup>	✓			
- inspect for nesting owls and burrowing animals	Quarterly <sup>a</sup>	✓			No BURROWS FOUND
- security fencing and gates	Quarterly <sup>a</sup>	✓			
- riprap	Quarterly <sup>a</sup>	✓			
Landfill Cap					
- settlement monitoring (survey monuments)	Every 5 Years				
- erosion	Quarterly <sup>a</sup>	✓			
- visual observations of settling (i.e., cracking, sloughing)	Quarterly <sup>a</sup>				
- vegetation control and restoration	Quarterly <sup>a</sup>	✓			
- cap breaching	Quarterly <sup>a</sup>	✓			
- water drainage	Quarterly <sup>a</sup>	✓			EXCELLENT DID NOT MOVE ANY
- paint and maintain raptor perches	Quarterly <sup>a</sup>	✓			
Landfill Gas Vents					
- riser condition (i.e., paint, integrity)	Semiannual	✓			
- concrete collar condition	Semiannual	✓			
- screen condition	Semiannual	✓			
Landfill Gas Monitoring Wells					
- riser condition (i.e., paint, integrity)	Semiannual	✓			
- traffic protection (i.e., bollards)	Semiannual	✓			
- concrete collar condition	Semiannual	✓			
- well cap integrity	Semiannual	✓			
- water drainage	Semiannual	✓			
- well locks	Semiannual	✓			
Collection Trench Wells					
- concrete collar condition	Semiannual	✓			
- protective cover condition	Semiannual	✓			
- well cap integrity	Semiannual	✓			
- water drainage	Semiannual	✓			
- well locks	Semiannual	✓			

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency	Condition			Comments
		Good	Needs Maintenance	N/A	
<i>Groundwater Monitoring Wells and Piezometers</i>					
- riser condition (i.e., paint, integrity, cover)	Semiannual		WI-1R NEEDS PAINT		
- concrete collar condition	Semiannual	✓			
- traffic protection (i.e., bollards)	Semiannual	✓			
- well cap integrity	Semiannual	✓			
- water drainage	Semiannual	✓			
- well locks	Semiannual	✓			
<i>Stormwater Runoff Control</i>					
- water drainage	Semiannual <sup>a</sup>	✓			
- culvert and trench drainage	Semiannual <sup>a</sup>	✓			SCREENS STILL IN PLACE
- riprap	Semiannual <sup>a</sup>	✓			
- erosion	Semiannual <sup>a</sup>	✓			
- settlement	Semiannual <sup>a</sup>	✓			

**Notes:**

(a) Frequency indicates minimum requirements. Inspections are required after significant storm events and as needed.

**Abbreviations and Acronyms:**

N/A - not applicable

*Shelley*  
11-15-04

# **APPENDIX I**

## **RESPONSE TO COMMENTS**

**EPA COMMENTS ON  
DRAFT SITE 1 LANDFILL 2004 ANNUAL REPORT  
REVISION 0, JUNE 22, 2005  
FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

Comments dated: August 26, 2005

Comments by: Lida Tan, Remedial Project Manager  
Superfund Federal Facility Branch  
EPA Region 9

**GENERAL COMMENTS**

**Comment 1:** *The Draft Site 1 Landfill 2004 Annual Report (Report) lists Calculated Concentration Limits (CCLs) for each constituent of concern (COC). The Report indicates that in some cases, the CCL was raised to meet the available method detection limit (MDL). However, according to the analytical results presented in Appendix B, the reporting limit exceeds the CCL for most of the dissolved metals and several of the semivolatile organic compounds (SVOCs), in some cases by one or two orders of magnitude. Therefore, based on the information presented in the Report, it can not be concluded that the constituents listed as 'not detected above the project reporting limit' are below the CCL. Please revise the Report to clarify that for many constituents the reporting limits exceed the CCL, and discuss how this affects the interpretation of the analytical data.*

**Response 1:** The *Technical Memorandum (Tech Memo) Site 1 Groundwater Evaluation Process* was finalized April 8, 2004. The reporting limit for most of the dissolved metals and select semivolatile analytical results obtained during the March 2004 sampling event (collected and analyzed prior to finalizing the Tech Memo) do exceed the calculated concentration limit (CCL), but they were conducted under the former groundwater sampling and analysis program at Site 1. Subsequent sampling events (May and November 2004) have been conducted in accordance with the Tech Memo, which required a new laboratory method for dissolved metals that obtained reporting limits below the respective CCLs.

Select SVOC reporting limits (the sample quantitation limit [SQL] value shown on Table 3-1) do exceed the CCL. For example, the SQL for Caprolactam is listed on Table 3-1 as 10 µg/L, and the May 2004 result for the groundwater sample collected from monitoring well W1-1 is 9.4U µg/L. However, the method detection limit (MDL) for

Caprolactam is 5 µg/L (see Table 3-1), which is also the CCL. If there was a detection of Caprolactam equal to or greater than 5 µg/L and less than 9.4 µg/L, the value would be reported as an estimated value (flagged with a “J” by the laboratory). Estimated concentrations are considered detections in the groundwater evaluation process. The duplicate sample for well W1-1 for May 2004 shows the validity of this methodology, as the Caprolactam concentration is reported as 6.2J µg/L.

All of the compounds that have CCLs less than the SQL, have the CCL equal to the MDL. Therefore, the methodology will identify any compound that exceeds a CCL.

No change in text is proposed.

**Comment 2:**

*The conclusion of the Report summarizes the same information that was presented in the previous sections of the Report; however, no real conclusions are provided. To make the Report more useful for reviewers, please revise the Report to provide conclusions as to whether the data indicate there has or has not been a release from the landfill to groundwater, whether landfill gas is migrating offsite, and whether the landfill cover is intact and functional.*

**Response 2:**

Concur. The last few paragraphs of Section 5.0 have been revised as follows:

There were no detections of dissolved mercury or of any SVOC greater than the laboratory reporting level for the supplemental groundwater samples collected in July, August, September, and December 2004. **In accordance with the Tech Memo (TtFW, 2004), analytical results obtained throughout 2004 indicate that there has not been a release from the landfill to groundwater.**

As part of landfill monitoring activities, methane monitoring was conducted for 19 passive gas vent wells within the Site 1 Landfill and 4 landfill gas monitoring wells on the perimeter of the landfill. Gas monitoring is also performed at the perimeter of the site at 150-foot intervals. **No landfill gas is migrating offsite.**

In general, the percentages of methane gas concentrations within the landfill were slightly lower in November 2004 than in March or May 2004 and are similar to historical concentrations. Methane concentrations were highest in May 2004, near the northern portion of the landfill (GV-8 at 57.9 percent), followed by a detected concentration of 52.1 percent in GV-11, which is near the center of the landfill. None of the perimeter wells showed concentrations of

methane above the concentrations limit of 5 percent (all readings were zero percent). Methane was not detected at any of the perimeter monitoring locations in March, May, or November 2004.

**As part of landfill maintenance activities, the landfill is routinely inspected and repaired, as necessary. The landfill cover is intact and functional.**

## **SPECIFIC COMMENTS**

### **Comment 1:**

*Executive Summary, page ES-2: The second paragraph on this page indicates that bis(2-ethylhexyl)phthalate (BeP) exceedance of the CCL is considered to be false positive because BeP is often a laboratory contaminant. It is true that BeP is a common laboratory contaminant, but BeP can also be a site contaminant. The knowledge that BeP can be a laboratory contaminant is not sufficient to qualify sample results as such. Results should only be considered questionable when the concentrations of BeP in either laboratory blanks or blank samples collected during sampling are high enough (pursuant to Functional Guidelines Criteria) to justify qualifying the associated client sample results. Please revise the Report to include BeP results in the release analysis or to clarify if the above criteria were met.*

### **Response 1:**

BeP results have been included in the groundwater evaluation process. The end of the fourth paragraph on page 5-3, which continues on 5-4, states:

Both the BeP and caprolactam CCL exceedances were only in the duplicate sample. BeP and caprolactam were not detected in the regular sample collected from this well at the same time as the duplicate sample. In addition, BeP is often a laboratory contaminant. However, since this was the first time SVOCs were sampled at Site 1, there was no historical database for comparison. BeP and caprolactam were not detected in the July and August supplemental groundwater sampling events. The May CCL exceedance for these compounds is treated as a false positive, and these compounds were removed from further consideration.

The comment about BeP being a common laboratory contaminant is a side bar note. The analysis for BeP followed the Tech Memo requirements, looking at the subsequent July and August results. The false positive determination is based on not meeting the two out of three detections rule.

No change in text is proposed.

### **Comment 2:**

*Section 1.2, 2004 Monitoring and Maintenance Activities, Page 1-1: The first sentence in this section refers to monitoring and maintenance*



*activities conducted in 2004. However, only the monitoring activities are listed. Since the maintenance activities are discussed later in this section, and to avoid confusion, please delete the word 'maintenance' from the first sentence.*

**Response 2:**

Concur. The first sentence of the first paragraph of Section 1.2 has been revised as follows:

Monitoring ~~and maintenance~~ activities conducted in 2004 at Site 1 included depth to groundwater measurements, groundwater sampling, and methane monitoring.

**Comment 3:**

***Section 1.2, 2004 Monitoring and Maintenance Activities, Page 1-2:***  
*The Report states that the sampling frequency and some analyses were modified in 2004 and that sampling was conducted in March, May, and November, but it is not clear from these three sampling dates whether the sampling schedule is semi-annual rather than quarterly or if sampling is done at some other frequency. Please clarify the new sampling frequency and indicate whether this change is temporary or permanent, and whether the new analyses will be included in all future sampling events.*

**Response 3:**

Concur. The first and second paragraphs in Section 1.2 have been revised as follows:

Monitoring ~~and maintenance~~ activities conducted in 2004 at Site 1 included depth to groundwater measurements, groundwater sampling, and methane monitoring. Groundwater monitoring at Site 1 was conducted during 2004 in accordance with the *Site 1 Landfill Final Closure Plan and Post-Closure Maintenance Plan* (Tetra Tech EM, Inc. [TtEMI], 1998), the *Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2) Sampling and Analysis Plan* (International Technology Corporation [IT], 2000), the *Final Sampling and Analysis Plan Addendum for Post-Closure Monitoring (Site 1) and Groundwater Monitoring (Site 2)* (Foster Wheeler Environmental Corporation [FWENC], 2001a), and the *Final Site-Specific Contractor Quality Control Plan for Sites 1 and 2 Groundwater Monitoring and Maintenance* (FWENC, 2001b). **The groundwater evaluation process was revised between the March and May 2004 sampling events, in accordance with the Technical Memorandum Site 1 Groundwater Evaluation Process (Tech Memo) (Tetra Tech FW, Inc. [TtFW], 2004), which was finalized in April 2004.**

~~As requested~~ **approved** by the regulatory agencies, the sampling frequency and some analyses were modified in 2004 **in accordance with the Tech Memo. Sampling was conducted in March, May and November instead of quarterly. Quarterly**

sampling was continued through March 2004. The Tech Memo was issued in April 2004, which states that semiannual sampling will be conducted in May and November 2004. Mercury was added to the groundwater analytes sampled in March 2004, and mercury and semivolatile organic compounds (SVOCs) were added to the analytes sampled in May and November 2004.

**Comment 4:**

***Section 1.2, 2004 Monitoring and Maintenance Activities, Page 1-2:***  
*This section discusses the replacement of monitoring well W1-1, please provide the rationale for the replacement of W1-1. In addition, the section states that Well W1-1R which replaced W1-1 was developed in conformance with ASTM D5521-94. This ASTM standard was withdrawn in 2003 and replaced by newer standards. Please cite one of the current standards for purging and developing groundwater monitoring wells.*

**Response 4:**

Regarding the replacement of W1-1, the following paragraph has been revised as follows:

Monitoring well W1-1 was replaced in August 2004 **due to corrosion of the well riser and outer protective casing**. Installation of monitoring well W1-1R was completed on August 13, 2004. Table 1-1 provides well construction information for all Site 1 monitoring wells. Monitoring well W1-1R was constructed using techniques that conform to American Society for Testing and Materials (ASTM) D5092-04. Well W1-1R was located as close as possible to the original well and screened in approximately the same interval. Development of well W1-1R was completed on August 16, 2004. W1-1R was developed using a combination of surging and pumping that conforms to ASTM D5521-94. The boring log, well completion report, survey report, well development log, and well construction application are included in Appendix G.

ASTM D5521-94e1 was withdrawn in 2002/2003, with no replacement. It was removed due to ballot inactivity after a 5 years time period. The subcommittee chairman usually requests re-approvals after 5 years, but this one was inadvertently missed, and ASTM removed it. The subcommittee chairman is currently balloting for re-instatement. It should be back on the books in a few months.

No change in text is proposed.

**Comment 5:**

***Section 1.2, 2004 Monitoring and Maintenance Activities, Page 1-3:***  
*With regard to maintenance activities, the Report states that no problems were noted during Santa Clara County Department of Health (DEH) inspections. However, according to the inspection checklists in Appendix H, there are several minor issues noted. Please*

*include a short discussion on these issues and the actions that were taken to address them.*

**Response 5:**

The inspection checklist does not note any minor issues associated with the Site 1 Landfill. However, there were a few minor issues noted during the Site 22 inspection, which is addressed on the same form.

No change in text is proposed.

**Comment 6:**

***Section 2.1, Groundwater Gradient and Flow Direction, Page 2-2:***  
*The Report indicates that depth to groundwater measurements were collected from 12 monitoring wells, 2 piezometers, and 2 collection trench wells on each monitoring date, but some of the wells and piezometers were not measured on July 6. Please clarify which wells were not measured on July 6, 2004 and explain why these measurements were not collected.*

**Response 6:**

Concur. The text in Section 2.1, Page 2-2, third paragraph was revised as follows:

Depth to groundwater measurements were collected from 12 monitoring wells, 2 piezometers, and 2 collection trench wells at the Site 1 Landfill on:

- March 22, 2004
- May 24, 2004
- ~~July 6, 2004~~
- August 18, 2004
- September 27, 2004
- November 8, 2004
- December 13, 2004

**Depth to groundwater measurements were also collected on July 6, 2004. However, only the wells that were sampled were gauged for depth to groundwater measurements.**

**Comment 7:**

***Section 2.1, Groundwater Gradient and Flow Direction, Page 2-3:***  
*Several monitoring wells were not included in the evaluation of the potentiometric surfaces; however, for some of these wells, the reason for their exclusion is not clear. For example, the water levels in W1-19 in August 2004 and W1-16 in December 2004 appear to be within the range of typical values for these wells according to the*

*hydrographs in Appendix D. Furthermore, well W1-16 was not included in the potentiometric evaluation for five of the seven monitoring events. It appears unlikely that there would be errors in field measurement for the same well repeatedly. Please provide further justification for excluding these wells from the groundwater gradient evaluation, especially when excluding data similar to the historical range for a particular well. Also, please provide further evaluation of the anomalous readings for well W1-16 and discuss whether exclusion of any wells from the sampling program affected the established monitoring points and points of compliance.*

**Response 7:**

Concur. The water levels were reevaluated and included in the potentiometric surface contours. Therefore, Figure 2-2, Figure 2-3, Figure 2-4, Figure 2-5, Figure 2-7, and Figure 2-8 were revised. Furthermore, the text in Section 2.1, Page 2-3, first paragraph, was revised as follows:

The following monitoring wells were not included in the evaluation of the potentiometric surface: ~~It appears that the wells were gauged before the water levels in these wells stabilized from removing the water-tight compression caps or the field measurements were recorded in error.~~

- ~~• March 2004 W1-19~~
- May 2004 – W1-1, W1-15, and W1-16
- July 2004 – W1-16 and W1-20 (W1-20 inadvertently not measured)
- ~~• August 2004 W1-16 and W1-19~~
- ~~• November 2004 W1-15, W1-16, and W1-24~~
- ~~• December 2004 W1-16~~

**In May 2004, it appears that the water level measurement in well W1-16 was recorded in error.**